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## WORKS PROGRESS ADMINISTRATION

Harry L. Hopkins, Administrator

Division of Research, Statistics and Records

Emerson Ross - Director

Program and Work

of the

Rural Electrification Administration

in the

Works Program

✓ Prepared by  
✓ Samuel Liss  
edited by  
Arthur Stein and John J. Theobald, 1905-

Washington  
July  
1936

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## Works Program Activities

of the

### Rural Electrification Administration

#### Background

The solution to the problem of achieving wide spread rural electrification in countries with large farm and rural areas has been generally recognized as one requiring an international cooperative effort -- at least in discussion, presentation of mutual problems and exchange of ideas on the subject. To this end, two Congresses had already been held, one in London in 1924 and the other in Berlin in 1930, as well as a number of sectional meetings in Basle, London, Barcelona, Tokyo and Stockholm. That United States representatives took part in these Congresses and sectional meetings, albeit in an unofficial capacity, was an indication that this country had a lively interest in the problem. Because of its interest and because it desired to continue offering its cooperation in the solution of this mutual problem, the United States through its Congress made possible the convening in Washington, D. C. on September 7, 1936 of the previously scheduled Third World Power Conference.<sup>1</sup> The bringing of this Conference to American shores brought to our people the realization that rural electrification problems were world-wide. The papers which were presented at the Conference pointed to the great gains that had been made in extending electricity to farm and rural areas with Government participation and assistance. The continuous thread of thought that pervaded the discussion was that the achievement of wide spread rural electrification could not be left solely to the public utility companies, and that the farmers by themselves could do little without

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## Rural Electrification Administration

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some form of Government aid. Directive planning was deemed essential if the farmers' needs for electricity were to be adequately met. Such planning, it was felt, could be accomplished only on the basis of a national policy and program.

These conclusions of the Conference were not new to the interested groups in the United States who for years had been concerned with this problem. For example, the Mississippi Valley Committee Report of October 1, 1934 and the National Resources Committee Report of December 1, 1934 both reached practically identical conclusions in urging national participation in order to achieve wide-spread rural electrification in the United States. It might be said that the creation of the Rural Electrification Administration in May of 1935<sup>1</sup> was a concrete product of these two studies. The two reports together with the establishment of the REA consisted of a step forward in directive planning and in effectuating a national plan and policy of rural electrification in the United States.

The Mississippi Valley Committee Report recognized that agricultural rehabilitation was a basic national problem and that electrical power had an important part to play in its solution. It also reached the conclusion that only under Government leadership and control, exercised in particular instances by State and Local agencies, was it possible to supply electricity to any appreciable number of "dirt farms"; that the production and distribution of electricity were then most other factors demanded fairly wide coordination as part of a unified national system. The Committee suggested that the Government could spend profitably a billion dollars on the river works in the Mississippi

(1) - The temporary REA was created a year earlier by the President's Executive Order issued under authority given him by the E.F.A.A. of 1935.



Valley in the next 20 years, and recommended an allotment of \$100,000,000 to build independent, self-liquidating rural electric lines in the Basin where no lines existed and where it was likely that private interest would not penetrate to any great extent in the near future.

The National Resources Board study consisted of a survey of land and water uses, mineral deposits and public works in the United States in their relation to each other, and was to serve as a basis for future planning in conserving and developing these natural resources. In a special section devoted to hydro-electric power, the report pointed out that although the United States led the world in the total amount of horsepower of electricity used, the country was not utilizing to anywhere near the maximum ability the electrically derived mechanical power that can be realized by our fabulous store of natural, mineral and water resources. The Board, therefore, suggested that "one of the objectives which national planning should strive to attain is to provide all sections of the country with all the electrical power they may require at the lowest possible cost". It was immediately realized that the Board's inference that a great part of our population was not as yet enjoying the great service of electricity led directly to the consideration of supplying it to farmers and to other residents in our rural regions.

The endeavor to achieve farm and rural electrification to a greater extent and at a more rapid rate than had been accomplished in the past was crystallized with the establishment of the Rural Electrification Administration. After one year of operation under the 1933 Works Program, the Rural Electrification Administration became in May of 1936 a permanent Government agency, based on a 10-year program.



The fact that the Government found it necessary to step into this field was a symptom that certain deterrent forces existed which militated against the universal introduction of electricity on the American farm. These forces were numerous. However, they may be reduced into their two basic elements: (1) The farmers in the United States had assumed that rural electrification must come from the private companies; (2) The traditional policy of the privately owned utilities to extend their franchises into those areas which had proved most profitable.

The launching of the program and its magnitude was based, of course, upon the knowledge of what had and had not been accomplished in the field of rural electrification. In other words, the program was preceded by an examination of the status of rural electrification in the United States as a whole, in the different geographic regions of the country, and in the various states, and also of the degree to which electricity was being applied both in the industrial pursuits and in farming.

#### Rural Electrification in the United States

Of the total American farms in 1935 about 65 per cent had automobiles, 35 per cent had telephones, 30 per cent had radios, but only about 13 per cent had central station electricity. Moreover, the farmers formed only a small portion of the total number of utility customers served in the entire country.<sup>1</sup> Of the 25,341,303 utility customers in 1935, only 793,977 or about 3 per cent were rural and farm customers, despite the fact that they represent over 25 per cent of the total population. Of the 77,355,000,000 kilowatt hours of electric energy consumed by the entire country in that year, the farmer

(1) - See Table A - Central Station Customers in 1935 by Regions and States.

These studies have been conducted in order to determine the extent of the problem and to identify the factors which contribute to its development. The results of these studies are being used to develop a comprehensive program of research and development which will enable the Government to better understand the problem and to develop effective measures to control it.

The program of research and development is being conducted in a number of phases. The first phase is the collection of data on the problem. This data will be used to determine the extent of the problem and to identify the factors which contribute to its development. The second phase is the development of a comprehensive program of research and development which will enable the Government to better understand the problem and to develop effective measures to control it.

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probably utilized less than 1 per cent. Largely as the result of the absence of electricity, about 32,000,000 farmers were deprived of these social and economic benefits which have become associated with the American standard of living; In 1935, of the 32,000,000 farm population, 73 per cent had to carry water from wells or other sources of supply, 77 per cent had to get along with outdoor toilets, 93 per cent had neither bathtubs nor showers, 76 per cent relied on kerosene and gasoline lamps for illumination and 10 per cent were dependent upon candles, and 48 per cent had to do their laundry out of doors.

Before 1923 there had been practically no movement on the part of the Government or private interests to achieve farm and rural electrification. Neither was there any data on how many farms were electrified since domestic and farm use were not separated. During the period from 1923 to 1935 the number of farms that received electric service from central stations increased from 178,000 to 794,000 or an increase from 3.9 per cent to 12.6 per cent of the total number of farms. In 1936 there were 827,000 farms with central station electricity and 225,000 additional farms with independent generating systems. In other words, on January 1, 1936 only 13 out of every 100 farms were centrally connected.<sup>1</sup> This left about 6,000,000 farms, on which nearly 29,000,000 of the 32,000,000 farm population lived, without electricity from a central generating plant. This potential national demand for rural electrification was strikingly indicated when by March 1936, eleven months after its establishment, the Rural Electrification Administration had received applications for the construction of REA projects

(1) - See Table A-1 - Growth in Farm Electrification



totaling over \$90,000,000.

Rural electrification in the United States indicates a wide disparity between regions.<sup>1</sup> For example, the proportion of farms served by central stations was highest in the New England and Pacific States and lowest in the West South Central and West North Central States. In the West, largely because of the extensive practice of artificial irrigation, and in the thickly settled North Atlantic States, one farm in every 3 had central electric service in 1935. The comparative high ratio of electricity on farms in the North West is also explained by their close proximity to urban centers. In the South and in the Middle-West, the percentage of rural electrification was under 10 and in the Gulf States under 5 per cent. The Mississippi Valley, the Nation's granary, showed about 10 per cent farm electrification.

Similarly, the number and proportion of electrified farms in the country varied widely among the states.<sup>2</sup> New Hampshire with 84 per cent of its farms electrified in 1935 ranked highest. California was next with 54 per cent, Utah third with 43 per cent, and New Jersey fourth with 32 per cent. The balance of the 44 states had less than half of their farms electrified from a central station as of December 31, 1934. Fifteen states<sup>3</sup> had less than one farm in 25 which received electric service, with Mississippi lowest, with less than 1 per cent.

The average farm cost of the Rocky Mountains used about 830 kilowatt hours per year in 1930, while the average Pacific Coast farm used about 5,700 kilowatt hours of electric energy. The average annual use of 830 kilowatt hours in 1930, however, was largely due to

(1) - See Table B - Number of Farm Service Customers by Regions.

(2) - See Table B-1 and Chart 1 - Rural Electrification, Number of Farms and Farmers Served by Electric Central Stations in the United States by States.

(3) - Arkansas, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, North Carolina, North Dakota, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, West Virginia, Wyoming.

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the large use by the rest of perhaps 10 to 20 per cent of the farms. Consequently, the average farm use is probably below the average city use of electric service.

In 1935 electricity furnished about 80 per cent of the energy used to "drive factory wheels and perform other tasks of manufacturing industries", while it supplied only about 2 per cent of the power in agriculture. If 800 kilowatt hours is taken as the annual average in the non-irrigation states, the total annual farm use would be about 600,000,000 kilowatt hours as compared with 60 billion kilowatt hours used in industry, or about 100 times as much.

A number of foreign countries have a greater percentage of their farms electrified than the United States. Holland, France, Belgium and Switzerland all have almost universal farm unit electrification. Germany and Japan each have about 75 per cent of their farms electrified. New Zealand and Scandinavia over 60 and 50 per cent electrification respectively, while Russia, the largest electrified farm area in the world has 30 per cent of the land under cultivation using electric energy.

Of course, no just and accurate comparison of rural electrification between countries can be made without taking into account comparable bases, or well recognized controlling factors. Population density, size of farms, number of farms per mile and per square mile must all be reduced to a common denominator before comparisons are made. However, it does not follow that these controlling factors are excluded in determining the high or low percentage of rural electrification in any country. The degree of success or failure in achieving rural electrification presents no conclusive evidence when that success or failure is based upon the above mentioned criteria. That



These factors are important in rural electrification, no one will dispute; that they are exclusive determinants for success in this field is open to much doubt. At any rate they must be considered in an international comparative study of rural electrification.

Concentration of farms in limited areas resulting in heavy farm density is probably the most important of the above mentioned four factors obtaining successful rural electrification. Because of the difference in farm density per square mile in the United States and in other countries, the United States as a nation will suffer by comparison in the degree of success in rural electrification. However, if one takes selected areas in the United States approximating the farm density of countries having nation-wide rural electrification, it is found that the discrepancies in accomplishment largely disappear. Thus, New England and the State of Utah, where farms are comparatively small and concentrated, and cultivated lands are a small proportion of the total land areas, resemble in this respect such countries as Norway and Sweden, have approximately the same percentage of farm unit electrification. Similarly, because the French farm population lives in villages and not in isolated farm houses scattered over the land as in America, that country's farm and rural regions have been almost universally electrified. The same is true for Japan and Germany. On the other hand, in Great Britain where the population and farm density per square mile is heavy, rural electrification is smaller than in the United States, and only now getting under way. This is an indication that heavy farm density although it creates favorable conditions is no guarantee in establishing rural electrification.

Population density is another well recognized controlling factor in extending electric service in farm and rural areas. On this



basis the United States with a population density of 41 to the square mile seems to be handicapped when compared to Japan and France which have a farm density per square mile of 433 and 197 respectively. On the other hand, Norway and Sweden which have a lower population density, (24 and 36 respectively), than the United States have almost four times as many farm units receiving electricity. Moreover, New Zealand with a population density per square mile of only about 1/8 as great as non-metropolitan New York supplies electricity to twice as large a proportion of its farms. In 1935 approximately one New York farm in three was electrified, while New Zealand had two in every three receiving this service. Texas with a slightly greater population density than New Zealand had only about two farms in every 100 supplied with electric service in 1935. Here again population density does not seem to be the exclusive agent for successful rural electrification.

A comparison based upon the criterion of the average number of farms per mile similarly reveals no conclusive evidence regarding the progress or lack of it made by various countries in the field of rural electrification. While in the absence of all other governing conditions, it might be argued that France and Japan with an average number of 26 and 38 farms per mile presented a financial incentive to farm electrification, and the United States with an average of only two, did not, yet there are disturbing illustrations disputing this thesis. For example, both the United States and Norway have the same average number of farms per mile, yet the percentage of farms electrified in each country is 13 and 50 respectively. Sweden with twice the farm density per mile as the United States has more than four times the proportion of electrified farms.



The size of the farm is another factor in rural electrification because it provides a measure of distance between farm homes. The greater the distance over which current is transmitted, the higher the losses and cost. In this respect the United States as a whole is retarded. The average crop land per farm in the United States is 144 acres as compared to 14 for Sweden, 10 for France and 6.5 for Norway. The American average crop farm is 33 times the size of an average Japanese farm and 5 times larger than the average French crop farm. On the other hand, there are compensating features over and against the losses sustained because of greater distances between farm homes situated on relatively large crop farms. That is to say, the large farms are greater potential users of electricity and once this potential use is realized the losses due to transmission are minimized.

Summarizing this international comparison, three things stand out: (1) Recognizing certain criteria as a basis for a comparative study of achievement in the field of rural electrification, no conclusive evidence exists to prove that these criteria are exclusive controlling factors in determining the success and failure in this endeavor; (2) other economic factors which are discussed in the next section of this paper are probably of greater importance in the success achieved by other countries and for the slow progress made by the United States in the field of rural electrification; (3) in the face of the fact that about 6,000,000 American farms are now without central station electricity, international comparisons can be only of academic interest. A new approach to the problem must be taken if rural America is to be electrified. Other controlling factors such as cost of line construction in rural areas, retail rates, methods of raising capital, terms of service, in addition to those previously mentioned, must form



a basis for future efforts to bring electric service to the vast majority of farms now without it. In the past, progress has been slow and faltering and according to Mr. Administrator Morris L. Cooke, "unless steps are taken to provide a program of accelerating rural line construction it will -- based on the record of the last 10 years -- be some 50 years before even half of our farms are electrified".

Economic Interferents in the Past which Hindered Nation-wide Rural Electrification

A number of restraining factors are known to exist which in the past have adversely influenced nation-wide introduction of rural electrification in the United States: (1) High cost of rural distribution line construction; (2) low load factors due in part to the lack of electrical farm appliances and equipment; and (3) high losses due to the relatively greater distances over which the current must be transmitted. These in turn have resulted in excessive initial cash payments and high monthly guarantees required by the private companies from prospective farm and rural consumers; high retail rates; and a reluctance on the part of privately owned utility companies to enter the farm and rural field. Rural electrification in this country has been further hampered by a lack of government aid and the absence of a strong farm cooperative movement.

In rural electrification the major problem is the cost of delivering electric energy to the final consumer rather than the cost of generation. The largest item in this cost of delivery is the investment in transmission and distribution lines. Construction costs in rural regions where the customers average about 2 to 4 miles are of greater importance than in urban areas where the higher density of customers makes expensive construction less serious. A Federal Power



Commission study in 1935 of 338 of the larger utility companies serving about 90 per cent of all rural customers in the United States indicated costs for single-phase lines ranging from \$812 to \$2,453 per mile with a density of 4 customers to the mile. The average cost of construction per mile of line including transformers, secondaries, house service extensions, and meters with a density ranging from 3.7 to 6.3 customers, was \$1,740. These high construction costs have of course been reflected in high rates.

In an effort to defray costs, many private utilities have charged part or all of the cost of constructing rural lines to their customers. Others who bear the entire initial expense of construction require a minimum average revenue guarantee equal to a certain percentage of the construction cost. The Federal Power Commission study of rural rates and rural line construction policies and practices as of February 1935, found that prospective farm customers had to pay first costs ranging from \$125 to \$250 for a mile of distribution line with a density of 4 customers. On the other hand, minimum annual revenue guarantees over a period of years have been found to vary on a nation-wide basis from 1-1/4 per cent to 6-2/3 per cent of the total cost per month. In general, the companies plan to recoup the costs of construction within three years by requiring an annual gross revenue per mile equivalent to 1/3 of the construction costs. The maximum requirement per mile per month in the United States has been found to be \$37.50 charged by a Kentucky utility company and the minimum, \$7.00 required by a utility in Idaho, or a range of \$1.75 to \$9.33 per customer with a line density of four customers.<sup>1</sup> This practice has, of course, made rural electrification prohibitive in most farming areas.

(1) - Federal Power Commission-Electric Rate Survey-Data Series No. 5-February 1, 1935 - Page 7



High retail rates have discouraged the use of electricity on the farm and in the rural regions by preventing the functioning of an elastic demand which numerous studies have revealed prevails for this service. This largely explains why the normal farmer buys all of his minimum and then stops. As a result the farmer who is ordinarily a greater potential electric user than the city dweller probably uses on the average less than the urban consumer. Moreover, the experience of public utilities in the rural electrification field, indicates that one out of five farmers does not take current on the line constructed in their areas. A recent rate survey of rural electric service by the Federal Power Commission revealed that about 27 per cent of the utilities which reported costs ranging from \$1,000 to \$1,500 per mile of line and 50 per cent of those whose costs ranged from \$1,500 to \$2,000 per mile had monthly bills ranging from \$1.50 to \$3.00 for 25 kilowatt hours, or a rate of 6 cents to 12 cents per kilowatt hour. Since fully one-half of all the farms having electricity consumed in 1933 less than 30 kilowatt hours per month,<sup>1</sup> it is evident that at least 50 per cent of the farmers paid rates falling within this range. However, because the other 50 per cent used a greater quantity of power, the national average rural rate was about 6 cents per kilowatt hour.

The natural traditional policy of privately owned public utilities to extend their franchises into those areas which have proved most profitable is a factor responsible for the absence of wide spread rural electrification in the United States. Utility companies in the past have shown little interest in the field of rural electrification because of the risk and uncertainty in obtaining a fair return on their

(1) - Federal Power Commission - Electric Rate Survey - Rate Series Number 2 - February 1, 1933 - Forward.

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investment. They have penetrated the urban centers where rapid increases in the population and the growing use of electric power for other than domestic purposes such as street cars, street lighting, manufacturing operations, advertising display, and the lighting of the "great white ways" have netted them great profits. It was, moreover, easy to extend electric service to cities because of their proximity to sources of generation. The private utility companies, therefore, in following the road of least resistance ignored rural electrification to a great extent. The existing rural electrification system of the private utility companies cover the lines which are most remunerative, but, according to RRA Administrator M. L. Cooke, do not include all districts in which the farmers could afford the service. This phenomenon is explained by the lack of interest shown by private utility companies in rural electrification. When cooperatives and public bodies have taken the initiative and entered such rural areas, the private companies were then made to realize their lost opportunities and often considered such extensions as threats to the investors' profit. This was an admission of the economic feasibility of such projects.

From the experience of foreign countries which have been successful in achieving rural electrification, it appears that Government planning and financial assistance has played an important role. Rural Electrification Administrator Cooke in expressing his appreciation for the methods used by foreign countries said that "there is one rule that runs through all this farm electrification . . . . . and that is that those nations which have made progress in the matter of rural electrification apparently have done it because they had a plan".

Conversely, from the experience of the United States in



failing to achieve any nation-wide rural electrification, the lack of educational and financial assistance from the Government has been an important reason for this failure. For example, the United States with little or no Government assistance during the 12-year period (1922-1934) was able to increase the number of electrified farms from 100,000 to about 750,000 or an increase from 1 to 12 per cent of the total American farms. This still left 83 per cent of the farms and 21 per cent of the entire population without central station electric service. France, however, during the same 12-year period embarked upon a program of rural and urban electrification involving an expenditure of about \$300,000,000 which brought the service to about 90 per cent of the communities and increased electrification from less than 40 per cent to over 87 per cent of the population. The program definitely installed universal electrification on the French farms. The execution of the program was made possible by Government financial assistance. Public grants-in-aid by both the National Government and the smaller political sub-divisions consisted of about 1/3 of the investment and the balance was raised through Government loans. Moreover, it is very doubtful whether the Province of Ontario, despite its greater density of farms compared to the entire Dominion, could have achieved rural electrification for almost twice as many of its farms as the rest of Canada, had it not been for Government subsidy. Czechoslovakia also has subsidized its 1,200 cooperatives with grants amounting to from 50 to 75 per cent of construction costs and has made loans on the balance at low rates of interest. That the consideration of subsidies is bound to become a permanent importance in the future may be judged from the opinion of Administrator M. A. Cooke of EIA who believes that "some day the United States has got to come to subsidize as we



rise to higher and higher levels of percentage of electrification\*.

Because the farmers in the United States on the one hand, have assumed that rural electrification, which they have urgently wanted, must come from private companies, and because, on the other hand, private utilities controlling 95 per cent of the power industry have been reluctant to supply the service to the farm, no considerable progress has been made in this direction. This failure of the farmers to go out and get electricity for themselves through the only possible way open in an industry of high investment cost, namely through cooperative action, has been another factor retarding rural electrification in the United States. Ignorance regarding cooperative principles played an important part in this failure. Where the farmers realized the value of cooperatives, laws permitting their formation did not exist or the private companies opposed their formation. Where cooperatives were formed, private utility companies either controlled the sale of wholesale power and charged high wholesale rates or dominated the management to the detriment of the cooperative. Where reasonable maximum rates have been fixed by a State power commission and consumer operation proved successful, the utility companies have attempted to gain control of the association by buying members' stock at a premium. After obtaining control, the tendency has been to discontinue the less profitable secondary lines and to increase retail rates generally.

Countries like Sweden, Denmark, Switzerland and Czechoslovakia owe much to the farm cooperative associations in achieving rural electrification. Rural electrification in Sweden is accomplished almost entirely through cooperative societies made up of consumers



of electric power. These cooperatives consume a substantial volume of the State's production of electric energy. Most of the rural electric installation in Finland has been accomplished by the Electric Department of the Cooperative Wholesale of Finland. Growth of farmers' cooperatives after the World War is largely responsible for the high proportion of electrified farms in Germany.

The consumption of electricity on the farm, as elsewhere, is dependent upon the number of uses to which it could be applied. In this respect rural electrification in the U.S. has suffered from at least five shortcomings: (1) The inability of farmers to finance first costs of wiring their homes and barns; (2) their inability to purchase electrical equipment and appliances of which it is estimated there are about 20 suitable uses on farms and in farm homes; (3) the fact that about 50 per cent of the farms in the United States in 1930 had farm dwellings valued at less than \$1,000 has made it impractical to connect these low valued homes; (4) the reality of forty-two per cent of our farms being tenant operated in 1930 has introduced the difficult problem of cooperation between landlords and tenants to obtain this service; and finally, (5) the absence of electrical farm equipment which could be applied to the basic agricultural functions of plowing, sowing, harvesting, and haying has limited the field for rural electrification in the United States.

Since the last mentioned factor militating against wide spread rural electrification is a universal one and not peculiar to the United States, it must be treated separately as a long-time factor. The problem is one of flexible transmission of electric energy which has not as yet been solved by mechanical and electrical engineers. Particularly, does this factor affect agriculture in the United States



with its emphasis on grain and fiber farming. This type of farming presents greater obstacles to the application of electricity than such types as dairying, fruit raising, poultry, and the like.

#### Previous Government Efforts in Rural Electrification

Besides the previous efforts at directive planning suggested in the Mississippi Valley Committee and the National Resources Board reports, the Works Division under FERA carried on a rural electrification survey in 43 states and in many districts of those states. These surveys made under FERA auspices were primarily work relief jobs carried on without any idea of a construction follow-up.

On July 24, 1935 these surveys were stopped at the request of Rural Electrification Administrator Catoe in a letter to Fred Baker of FERA. It was realized at that time that only a small percentage of those who wanted electricity were likely to get it under this effort. It seemed, therefore, to be unwise to continue such surveys except in selected territory.<sup>1</sup>

However, all the information collected in the survey was sent to the office of the Federal Emergency Relief Administration in Washington and later turned over to the Rural Electrification Administration which undoubtedly made use of it before embarking on its program.

- (1) - The surveys consisted of information which came on three forms: (1) schedules drawn up by FERA; (2) supporting data of a narrative character, and (3) state reports made by FERA administrators. The number of schedules collected and sent in from forty states has not been determined. About states sent in complete reports, 15 states furnished semi-complete reports, an equal number transmitted poorer reports. About states did not send in any at all. The following fundamental principles were followed in ascertaining which projects would eventually become eligible for construction: (1) Project feasibility from the viewpoint of an isolated or regional construction enterprise; (2) Relative merits of projects with energy consumption per mile and variations in construction, operation and maintenance costs as indices of the merit of feasibility; (3) Determination of sponsors and ownership of projects to the end that maximum efficiency and economy in operation and maintenance would result.



The Work of the Rural Electrification Administration

Of the \$4,000,000,000 direct appropriation for the prosecution of the Works Program during the fiscal year 1935-1936 the Emergency Relief Appropriation Act of 1935 earmarked the sum of \$100,000,000 for Rural Electrification. In September of that year this fund was reduced to \$10,000,000 with the understanding that it would be augmented if and when the need arose. In accordance with the Act, an Executive Order dated May 11, 1935 established the Rural Electrification Administration "to initiate, formulate, administer and supervise a program of approved projects with respect to the generation, transmission and distribution of electric energy in rural areas". Actually, however, the REA is confining its activities to electric distribution systems rather than high voltage transmission lines and the construction of generating plants. In rare instances where there is no nearby source of power for a project, a short transmission line and sub-station or even a small generating plant may be included as part of a project. Up to date REA has not built a mile of transmission line and is not contemplating a single new generating system.

The fundamental purposes of the REA are: (1) To take, as it can, electricity in the shortest time possible to as many farms and farm houses which at present are not served by any other lines; (2) To initiate and activate sound policies upon which rural electrification may proceed in the United States. Thus, the immediate objective is to bring the economic benefits and living comforts of electricity to about 2,000,000<sup>1</sup> of the more than 8,000,000 farmers

(1) - The Mississippi Valley Committee estimated in 1934 that from one to three million farmers could economically be given the service.



who have heretofore been denied them. At the same time it is a start in completely electrifying rural America by giving the movement an impetus to adopt new policies and new techniques in order to enable it to proceed on its own momentum. As a farm welfare program, therefore, it aims to reduce the drudgery of farm life and increase its comforts, increase farm production and lower unit costs, and insure against farm desolation by insuring the continued occupancy of such farms.

In this effort to improve the economic and social conditions of American agriculture, REA is cognizant of its limitations. Rural electrification alone will not make for a prosperous American agriculture. The productivity of the soil, type of farming and farm products, the state of the national and international markets, supplementary sources of income, changes in population and in diet are more vital factors in successful farming. However, rural electrification has one contribution to make to American farm and rural life which once achieved will go a long way towards placing it on an equal basis with industry and urban life.

From the point of view of the Works Program, REA accomplishes two things: (1) It provides directly useful jobs to persons at present unemployed, with special emphasis on relief employables; (2) It tends to promote national recovery and reemployment by creating new and profitable business for producers of electrical and plumbing equipment and appliances. It has been estimated that 75 per cent of the money spent for rural electrification will go into industry for poles, wire, insulators, transformers, meters, and other manufactured products. It has also been estimated that for each dollar spent for the construction of lines \$3.00 will be expended for house wiring and electrical appliances.

There is a great deal of work to be done in the field of  
the history of the people of the United States, and it is  
the duty of every citizen to do his part in this work.  
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The REA is a finance organization which lends money on equal terms to private utility companies, state and local public and semi-public bodies and farm cooperatives for the purpose of constructing electric distribution lines and for the wiring of farm buildings and dwellings. Loans are made on a 20-year amortization basis at a 3 per cent rate of interest. No loans are made to public utility non-operating companies. No grants have been made, and no grants are contemplated in its program. Under suitable conditions, the REA lends the entire cost for the construction of electric power and light distribution lines in areas now without electric service. This includes service lines to the farm house usually not more than 150 feet from the main road, and the customers' meters. It does not finance projects situated in sub-marginal agricultural areas nor does it finance construction of competing lines or the rehabilitation of existing lines. No part of REA funds loaned is permitted to be spent for promotion activities or for a professional promoter. The borrowers are carefully selected with an eye to their ability to liquidate the advances. Loans are well secured. In the case of public bodies, the security provided is a lien upon the line constructed and the revenue bonds based on anticipated collection of taxes. Farm cooperatives pledge the line and its revenue. Loans to privately owned utilities are secured by the general credit of the borrower. In all cases, loans are protected against loss by a stipulation in the loan contract providing that one year's debt service is to be set aside by the borrower out of profits from the revenue of the line constructed. This is in addition to the pledge of the physical property after the line is completed.



Moreover, because there are no tangible assets at the outset, REA is exercising the utmost care in judging the self-liquidity of all projects. This is especially true of cooperatives which are building entirely new lines and not extensions to existing ones. For this reason, preliminary analysis is made of projects to obtain all pertinent data having a bearing on the cost of construction, cost of operation and maintenance, cost of power, together with all available information concerning tax rates and the economic status of the territory to be served. Investigation is made of the ability of the prospective consumers to use and pay for electricity in their homes and on the farms. In making the application for the loan, the applicant is requested to state what amount he can afford to spend each month for electric service and what additional amount he can afford to pay each month on installment payments for electric appliances. This information is checked against Census Bureau Publications and other available material concerning the economic status of the particular community, county, and state in which the project is located. This analysis is made to determine the wisdom of the loan by ascertaining what the balance between expected income and expected expenditures will be.

The REA does no building or planning of the actual construction. It, however, suggests standards and specifications and exercises such supervision and inspection of the progress of the work as may be helpful and necessary. These specifications for a type of line construction best suited for rural needs are drafted by REA engineers with the object of reducing construction costs to a minimum consistent with satisfactory performance and operation. Thus by



determining specifications and by guiding the progress of construction, REA has estimated that rural lines can be built in most localities for about \$1,000 per mile on the basis of 3 customers to the mile. This will include 3 transformers, service lines from the road, and meters. Moreover, REA engineers have found that an electric distribution system which is to be owned and operated independently by a farmers' cooperative or non-profit corporation can probably not be operated on a sound financial basis unless it embraces at least 25 to 50 and preferably more miles of line to serve an average of not fewer than three customers per mile. The policy of REA tends to larger projects than this, and if an otherwise feasible project fails fully to serve an unserved area, REA will require that it be enlarged to include as much of the unserved area as is economically possible.

REA has discouraged the requirement of initial cash contributions and high minimum monthly guarantees to defray the cost of line construction. It has suggested: (1) That for an area having between 3 and 4 customers to the mile, rural extensions should be built without customers' contributions; (2) That a customer's contract for rural service which provides for a monthly guarantee should have a definite termination period; (3) That rates be adjusted to yield annually a gross income per mile equal to 1/3 of the construction costs. Such provisions are usually incorporated in the loan agreement made between the REA and the borrower.

Although REA is not a rate regulatory body -- such regulations being more properly a function of the State Public Service Commissions -- low rates to promote consumption is one of its major considerations. In considering an application for a loan, an inference



consideration of the rates is made. A proposed project whose rates do not seem reasonable on the basis of its financial and engineering structure does not receive a loan. REA has suggested that the minimum retail charge is not to exceed \$2.50 to \$3.75 per month to include 40 to 50 kilowatt hours of current.<sup>1</sup> Moreover, service and transformer charges as well as any demand or other fixed charges which do not include current is to be avoided. Rates and charges based on room and areas criteria are likewise not to be practiced. REA recommends a simple system of block rates to include minimum charges and varying levels of blocks (price per kilowatt hour dropping in the second and following blocks of the schedule) so that on the one hand the principles of varying costs may receive application, and, on the other hand, the recognized existence of elastic demand for electricity be given free play. According to REA standards, wholesale rates to be paid by REA financed lines are to range from less than 1 cent to 2 cents per kilowatt hour.

REA's attitude towards the private utilities as component parts in the execution of the program has been one of consideration and cooperation. On May 30, 1935, REA Administrator W. L. Cooke, requested the Committee of Utility Executives representing privately owned plants to make a national survey to ascertain the approximate extent to which further development of rural electrification may be effected promptly in cooperation with REA. This Committee submitted a report to Administrator Cooke on July 24, 1935 which proposed a program of rural electrification for 1935-1936 amounting to \$238,000,000 "to serve and equip a total of 351,000 rural prospects of which 247,000" would be farmers. This survey had served as a

(1) - The average monthly bill, however, must be higher than this minimum for the project to be self-liquidating.



guide for the rural electrification program of the REA, although the latter has not adopted all of the principles upon which rested the Committee's suggested program.

The private utility companies, with minor exceptions, have reacted favorably to the REA program and its methods. In most cases private utility companies have come in voluntarily to take advantage of the very lending terms. Others have entered the rural field because of the activities of the farm cooperative associations. Many private companies have been content to permit farm cooperatives and public bodies to construct distribution lines because they see in them an increased market to absorb their generated power. This expectation of a new market for the power generated by the private utilities is justified because of the fact that in 95 out of a 100 cases farm cooperatives are going to buy current from existing private or municipal generating plants. All construction thus far will take current from existing power generating plants, and all developments have been on the basis of using the current of private companies and other existing plants.

Although REA is extending loans on equal terms to all public and private groups which manifest a willingness to undertake to supply farmers with electricity and who demonstrate an ability to operate these lines successfully and to repay loans, special consideration is given to loan applications of public, semi-public bodies, farm cooperatives, non-profit and limited dividend corporations. This special consideration is REA's general policy of selection of loan applicants is based upon the study of forces which had operated in the past and which had adversely affected successful nation-wide introduction of electricity in farm and rural areas.



For example, large overhead and operating cost, due to a large extent to piece-meal construction, has tended to increase construction costs of private utility companies and has resulted in their charging prohibitive retail rates. Moreover, the private utilities in building lines sporadically have covered comparatively small mileages which not only contributed to high cost but led to insufficient coverage. In contradistinction to these methods, cooperatives have built large mileages in the past and are building longer lines under the RIA program. Thus large scale planning and mass construction is more likely to be carried on by the cooperatives than under the initiative of private utility companies. Also, where equal mileages are involved, overhead and operating costs promise to be lower under cooperative operation and management.

Another reason why RIA has been particularly concerned with electric farm consumers' cooperative associations is their economic ability to operate successfully on lower rates charged to the consumer. A study made in May 1933 of "Cooperative Consumer Associations for Rural Electrification" covering 12 cooperatives, organized in three states during the 30-year period from 1914 to 1934 which have constructed over 300 miles of line and serving over 2,000 customers, revealed rates considerably lower than those charged by the private utility corporations. Retail rates ranged from one to 4 cents per kilowatt hour for the first 100 kilowatt hours of current and declined thereafter. Only one cooperative in this group which had 24 members charged a higher rate than 4 cents. As a result of these low rates, consumption increased. The Alcona County Cooperative in Michigan, for example, had reached an average of 130 kilowatt hours per month



after 18 months of operation. This was an increase of about 25% per cent. Similar increases occurred in Webster County in the same State and in many other counties in the Tennessee Valley. Moreover, the cooperatives were demonstrated a financial soundness and ability to "pay-out". A group of 11 cooperatives<sup>1</sup> in Hamilton County, Tenn., which were formed during the period between 1911 and 1918, have during all the years of the 1930 depression maintained their lines, paid all obligations incident to their operation, have not lost one customer, and are financially sound today. These lines have 70 miles of line and serve 400 farmers. There are in all about 50 such electric cooperatives which have come into existence in the United States and have maintained themselves without Government loans or other help. This has warranted the conclusion that that those existing cooperatives have been able to do without Government help, any agency can achieve with it. On the other hand, lack of funds or hard terms on borrowed capital has been the chief reason for the failure of cooperatives. However the Federal Government could do to help finance rural electric construction easily amortized over a period of years could help considerably in providing electric service, that thing, however, would not be accomplished.

Also, the policies and practices of the Tennessee Valley Authority have to no small extent influenced TVA in its attitude towards cooperatives. TVA while it is working in the generation and transmission of electric energy in the Tennessee Valley is calling for the most part, power of thousands of municipalities and county co-operative associations. For this reason, TVA has been surprised to see

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courage the formation of the cooperatives in the South.

Finally, public ownership of rural lines by cities or counties has not provided a solution to the problem of rural electrification. Often it has been impossible and economically unfeasible for municipally owned plants to include rural areas in a power district. In addition, areas in need of rural electrification are often not confined within the county limits in which such plants are located. Similarly, state ownership of rural lines is not easily achieved since the number of people to be served is comparatively small and their problems are of little interest to the voters of a State as a whole.

The logical outcome of these considerations for the farm and rural population anxious to obtain electricity at reasonably low rates from private or public power distribution agencies, is to have the potential beneficiaries organize themselves into some form of cooperative association by which they can obtain and distribute power to themselves at rates covering all necessary cost but not loaded with a triple of profits to extraneous stockholders or holding companies. The cooperatives offer a practical solution to the rural electrification problem; in many instances even the only feasible solution.

She has maintained also that electricity on the farm must be used for more than lighting purposes if rural power and light projects are to be successfully established and operated. The use of electricity for lighting alone will not yield a sufficient return to warrant building a project and will not result in rural electrification. "The cost of installing the lines and house wiring is an item too large to be undertaken for the sake of a water closet in the bathroom and a waffle iron on the table. If utilized only for its (electricity) own



comfort, the non-electrified farm would not be a prospect worthy of REA attention", remarked Administrator Cooke. For this reason, REA has certified that for a project to be economically sound and self-supporting, each household on the line, as a general rule, must have a minimum number of electrical appliances sufficient to consume about 100 kilowatt-hours per month. It has been estimated that on a basis of this monthly consumption, the farm will need about \$350 worth of appliances and equipment. That this consumption is possible has been demonstrated in the Tennessee Valley where members of farm cooperative associations have reached an average residential consumption of 120 kilowatt hours per month by December 1935.

The realization that the consumption of electricity on the farm is dependent upon the number of uses and the number of appliances to which it could be applied, has led the REA to incorporate as an integral part of its program, the financing, on easy terms, the wiring of individual farm buildings and dwellings as well as the purchase of appliances, equipment, and supplies. The REA, therefore, is supplementing its financing of new power line construction by also making farmstead wiring loans. Two other Federal agencies, the Electric Home and Farm Authority and the Federal Housing Administration are financing loans for electric appliances and plumbing fixtures respectively. Finally, REA has established a Utilization Section to encourage larger and more effective use of electricity, and to educate its users to the value of a wide variety of home and farm appliances and equipment. The work of this section is to make rural America electricity conscious.

#### Status of Projects as of July 31, 1936

Through July 31, 1936 net allocations for the construction

By virtue of the fact that the present report is a preliminary one, it is not possible to give a detailed account of the work done during the past year. The following is a summary of the work done during the past year, and of the results obtained. The work done during the past year has been of a preliminary nature, and has been confined to the study of the general principles of the subject. The results obtained during the past year have been of a preliminary nature, and have been confined to the study of the general principles of the subject.

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of 89 rural electric distribution line projects<sup>1</sup> in 28 states<sup>2</sup> amounted to \$14,960,728. The average allocation per project was equivalent to \$168,092. In addition to the above total allocations the sum of \$179,000 had been made for the purpose of financing the wiring of customers' premises. The distribution line projects will when completed provide 13,588 miles of line and will serve 52,629 customers.

Of these total allocations, loan contracts for distribution line construction have been executed to a total amount of \$10,441,728 and one loan contract of \$30,000 has been executed in the State of Ohio for financing the wiring of customers' premises.<sup>3</sup> The average loan made as of July 31 was \$183,188, with loans ranging from \$5,616 for Iowa 6 Dallas to \$600,000 for Minnesota 25 McLeod. The 57 projects on which loan contracts have been executed will provide about 9,380 miles of line and when completed will serve 36,076 customers who have not previously been provided with central station power.

On July 31, there were 14 projects under construction employing 473 persons of whom 134 were of relief status. These projects involving total allocations of \$3,620,076, will provide 3,321 miles of line and serve 14,622 customers.<sup>4</sup> As of the same date, four projects had been fully completed involving allocation of \$175,616 and providing approximately 128 miles of line to serve 825 customers.<sup>5</sup>

(1) - See Table C - Approved Projects of the Rural Electrification Administration as of July 31, 1936.

(2) - See Table D - Status of Rural Electrification Administration Projects By States - Total Projects Approved

(3) - See Table D - Status of Rural Electrification Administration Projects By States - Projects With Loan Contracts Executed

(4) - See Table D-1 - Status of Rural Electrification Administration Projects By States - Projects Under Construction

(5) - See Table D-1 - Section on Projects Completed



On these completed projects the estimated employment involved 128,371 man-hours of labor.

In addition to these fully completed projects, work had been fully completed to energize in whole or in part lines on 12 projects involving allocations of \$1,561,050 and providing a total length of 1,487 miles designed to serve 9,848 customers. The recapitulation as of July 31, 1936 is as follows:

1. Approved Projects

- a. Total number of projects -- 89
- b. Total net allocations -- \$14,980,728
- c. Total number of miles -- 13,588
- d. Total number of new customers 82,639

2. Projects for which loan contracts have been executed

- a. Total number of projects -- 59
- b. Total value of the contracts \$10,441,728
- c. Total number of miles -- 9,860
- d. Total number of new customers 58,076

3. Projects under construction

- a. Total number of projects -- 14
- b. Total net allocations -- \$5,620,075
- c. Total number of miles -- 3,320
- d. Total number of new customers 14,628

4. Projects completed

- a. Total number of projects -- 4
- b. Total net allocations -- \$173,616
- c. Total number of miles -- 128
- d. Total number of new customers 825

Because of the fact that a great proportion of the expenditure in the construction of RRA projects will be on equipment, materials and supplies, the man-year cost will be considerably higher than for the average WPA project. The estimated man-year cost on all approved projects as of July 31 was found to be \$3,872, while the estimated man-year cost for projects with loan contracts executed was equivalent to \$2,722. Projects under construction showed an estimated man-year cost of \$2,390, and for those projects completed it



equaled to \$2,042.

The estimated average cost per mile for the 89 projects approved as of July 31 equaled about \$1,110, with costs ranging from \$838 to \$3,109. These variations in costs are largely explained by the differences in local conditions of terrain, required amount of tree trimming, number of customers per mile, etc. The estimated average cost per mile for projects with loan contracts executed was equivalent to \$1,118, while projects under construction showed an estimated average cost of \$1,090 per mile of line. The actual average per mile cost for the four projects completed is unavailable as yet, but there are indications that the figure will be very close to \$1,000.

An analysis of the distribution of projects among the 28 states indicates a positive relationship between the number and value of projects on the one hand, and the ability of the states to finance them on the other. This is, of course, in line with RRA's practice of operating on a self-supporting basis and to insure self-liquidity of the project before loans are made. Outside of an individual examination of each project showing the number of customers and their ability to pay for the service on a project, the three basic criteria which can be used for determining the ability of a state to successfully finance rural electrification projects on its farms and in its rural areas, are the value of farm dwellings, other farm buildings and the average income per farm. The following picture throws some light on the economic causes motivating the geographical distribution of RRA projects:

As of July 31, 1936, 53 projects representing about 60 per cent of the total number and 69 per cent of the total allocations



were located in states which had an average value for farm buildings and farm dwellings above the 1930 national averages of \$2,059 and \$1,126 respectively. Moreover, 59 projects representing about 67 per cent of the total number and about 73 per cent of the total allocations were located in states which had an average farm income above 1935 national average of \$1,020. Even these counties, with REA projects, which were located in states falling below the national average valued of farm buildings, dwellings and income, indicate, with few exceptions, higher average values for these three items than for the states as a whole.<sup>1</sup> In a number of cases these county averages not only approached the national averages very closely, but were even higher. Cases in point are New Hanover county in North Carolina, Pinellas and Orange counties in Florida and Rockingham and Prince William counties in Virginia.

In examining the logic behind the location of REA projects from another angle, it is found that the lowest 10 states in which rural electrification projects are located, on the basis of average value of farm buildings and dwellings, had 27 per cent of the projects with 23 per cent of the total allocations, while the 10 highest had 51 per cent of the projects with 64 per cent of the total allocations. Similarly, the lowest 10 states on the basis of 1935 average farm income had 31 per cent of the projects with 22 per cent of the allocations, while the 10 highest had 50 per cent of the projects with 48 per cent of the allocations.

The special consideration that the cooperatives, public bodies and other non-profit making groups have received is apparent

(1) - See Table F - Comparison of the State's 1930 Average Values of Farm Buildings, Farm Dwellings and Gross Income Falling Below the National Average, with Those of Its Counties in Which REA Projects are Located.



from the following: As of July 31, 1936, these groups were sponsoring about 85 per cent of the total number of projects and 92 per cent of the total allocations. They also receive 92 per cent of the loans. The cooperatives, taken separately, received allocations and loans amounting to over 77 per cent of the total. Moreover, the farm co-operative associations combined with the public bodies receive allocations sufficient to build about 90 per cent of the mileage to be provided under the REA program as of July 31, 1936.<sup>1</sup> This mileage will serve over 90 per cent of the total number of customers.

A comparison of the size of the average project sponsored by cooperatives, public bodies and private utilities reveals significant differences, which confirm the analysis made earlier in this paper regarding advantages of economy and greater coverage when rural line construction is undertaken by non-profit making groups. The average value per project sponsored by the cooperatives equaled \$134,612 for an average project length of 165 miles. This is about the same as the average project value and mileage of public bodies with \$193,473 and 138 miles respectively. On the other hand, privately owned utilities' projects showed an average value of only \$34,623 and an average mileage of only 82. Thus, the average project sponsored by the cooperatives and public bodies was larger in terms of dollars and mileage than the average project sponsored by private utility corporations. Practically similar results are obtained when the size of the loan contract and the average project mileage are examined for each of the three sponsoring groups. As of July 31, the public sponsors received the highest average loan of \$351,376 for an average project of 219

(1) - See Table 6 - Rural Electrification Projects by Sponsors



miles. The private sponsors were the recipients of the lowest average loan of \$93,096 for an average project mileage of 92. The average loan to the farm cooperatives equaled \$185,865 and the average size of project was 164 miles.

The Rural Electrification Act of 1936

On May 20, 1936 the President approved the Norris-Rayburn or the Rural Electrification Act of 1936 which made the Rural Electrification Administration permanent. The Act provides for the appropriation of \$410,000,000 over a 10-year period beginning July 1, 1936. Thus, a long-term program was established to achieve rural electrification on a nation-wide scale to the end that a balance of urban and rural standards of industry and living be reached.

The principles enunciated by the Emergency REA are being followed by the permanent organization: (1) To supply electricity to farmers not receiving it; (2) to make no loans for the construction of competing lines; (3) to make loans only and not grants; (4) to finance parallel line construction only when it becomes absolutely necessary, and then only on condition that no current is to be taken off the line already in existence; (5) to make all electric distribution lines constructed with REA funds self-liquidating; and (6) to give preference in lending to public and semi-public bodies, cooperative associations, and other non-profit or limited dividend associations.

However, the terms and conditions of loans under the new set-up were changed so as not to exceed a maturity of 25 years, and at interest rates equivalent to an average rate of interest payable by the United States Government on those of its obligations having a maturity of 10 years or more. Moreover, no loan is to be made for the con-



struction, operation or enlargement of any generating plant", unless the consent of the state authority, having jurisdiction in the premises, is first obtained.

For a period of one year, ending June 30, 1937, the Reconstruction Finance Corporation is authorized and directed to make loans to the REA Administrator upon the latter's request provided of course that they have first received Presidential approval. The aggregate of such loans is not to exceed \$50,000,000 with interest at 3 per cent amortized over a 25-year period. Reconstruction Finance Corporation loans are to be secured by the obligations of the borrowers of the Rural Electrification Administration. Although the Act does not specify the conditions of the loans made by the RFC to REA, the Reconstruction Finance Corporation, as a general rule, makes no loans exceeding 85 per cent of the amount of the collateral presented by a borrower. This arrangement will apply to the Rural Electrification Administration acting in the capacity of a borrower. Consequently, the REA will have to supply, at least in the first year, \$15 from its own resources for every \$100 loan that it makes. This is expected to be obtained from the approximately \$15,000,000 of collateral that the Rural Electrification Administration had purchased during its emergency regime.

Beginning with the fiscal year July 1, 1938 and running through the fiscal year June 30, 1946, authorization has been given for an annual sum of \$40,000,000 to be appropriated by the United States Treasury to the Rural Electrification Administration. This annual sum is to be apportioned in the two following ways: (1) Fifty per cent is to be made available or apportioned "for loans in the several states in the proportion which the number of their farms not



receiving central station electric service bears to the total number of farms of the United States not then receiving such service"; and (2) "The other 50 per cent is to be made available for loans in the several states and in the territories" in "such amounts for each state and territory as in the opinion of the Administrator may effectively be employed for the purpose of the Act", with the limitation that not more than 10 per cent of this sum may be employed in any one state or in all of the territories.

Projects financed through allocations from the Emergency Relief Appropriation Act of 1935 will be completed with those funds, while in the future, funds secured from the REA and direct government appropriations will be utilized on new allocations, loan contracts and operations.

#### Organization and Administration

The administration of the Rural Electrification Administration is completely centralized. The direction for its activities comes from Washington, and all correspondence relating to inquiries involving authorization of projects and loans is sent there. The Administration has no State or Regional offices, although it employs traveling field representatives most of whom are engineers. In the field, REA cooperates with any interested parties such as State agricultural colleges, state public utility commissions, state and county electrification authorities, farm organizations, etc. These groups usually assist farmers in taking advantage of the opportunities to achieve rural electrification in their districts.

The Rural Electrification Administration has been divided into four operating divisions, each in charge of a Director who is responsible to the Administrator, Morris L. Cooke. The Engineering



Division, under the direction of Willard E. Herring, reviews and analyzes projects, supervises construction and service operations, makes rate analyses and conducts special studies. Melvin D. Swanson is the chief engineer. The Management and Finance Division, under the direction of Perry E. Taylor, is in charge of procurement, pay-rolls, vouchers, auditing and accounting. The Legal Divisions, under the direction of Vincent D. Nicholson, General Counsel, studies state statutes, decisions and regulatory procedures bearing on construction projects. It drafts loan contracts, attends to legal matters arising during construction and reviews legal opinions concerning the agency's activities. The Information and Research Division under the direction of M. L. Ramsey, is in charge of information and program development, research and statistics. In addition, the Administration employs persons who act as consultants and do special assignments.

Steps Leading to an Application for a Rural Electrification  
Project Loan

In order to facilitate the organization of rural electrification projects, the REA has issued instructions to all organizers and sponsors of such projects. These instructions are primarily intended for organizers of projects to be owned by cooperatives or other non-profit organizations. However, they also apply to municipally and privately owned plants sponsoring rural electrification projects.

The instructions suggest several preliminary steps to be taken prior to the application for a loan. Among these are included the planning and launching of an educational campaign, a mass meeting of prospective customers and the set up of an organization to effectuate the program for a project.



If the vote at the mass meeting is feasible, a Temporary Committee<sup>1</sup> is suggested to be formed. The task of this body is to arrange and supervise a survey of the project areas which will supply information on the number of unserved farmers and other rural or other and village residents in the project area who will buy electricity if it is made available and the quantities they will probably consume. It will also be the duty of this Committee to supply the RRA with a large consolidated map on which will be plotted data describing the physical, geographical and economic environment of the project area bearing on the feasibility of the project.

After RRA has studied this material and its Engineering and Legal Divisions have ascertained the engineering feasibility, the economic soundness and the legality of the project, the sponsors are advised to apply for a loan. Upon approval of the loan application, the RRA requests an allocation from the Bureau of the District. The President may then subscribe the allocation after the Bureau of the District advises him by means of a treasury warrant that the funds are available. The counter-signature of the Comptroller General re-

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- (1) - The Temporary Committee is to include one representative from each township, school district and all other major county subdivisions. It is to serve as the contact agency between the project and RRA in the earlier stages of negotiation. The Committee or sub-committees are to be sufficiently large to visit all the prospective customers in each township, school district, etc. Members of these committees are to be furnished Project Survey Blanks in a form suggested by RRA as well as maps of the area covered by them on which to jot down data for a large consolidated map to be eventually drawn up. Every prospective customer will be asked to fill out and sign the Project Survey Blank as an indication of his intention to join in the project and take electricity when available. The Blanks, among other questions, will carry queries asking the prospective customers to promise to grant rights of way and easements. Additional items reported by the Temporary Committee to RRA will be as follows: (a) total number of miles



leasing the funds is usually followed by the execution of the loan contract between the borrower and REA.

Finally, both the signed and unsigned Project Survey Blanks together with the data collected, to be used for making the consolidated REA map as well as the extra plotted map of each town or village are to be turned over to the REA. After the loan contract has been executed, the borrower is ready to enter into a construction contract which is consummated only after a prior examination of it has been made and approved by the Rural Electrification Administration. Subsequent to the making of the construction contract, the United States Treasury places specified sums, which are usually portions of the loan, in local banks acting as depositories. Each requisition subsequent to the first will be made after information on the physical progress and financial status is submitted to REA. When the borrower is ready to proceed with construction, he notifies the REA in Washington, D. C., which in turn informs the Treasury and the local banks to meet payments at the request of the borrower.

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(1) (continued from preceding page)

in the proposed project; (b) total number of signed customers; (c) number of these signed customers who can be served from the proposed lines drawn on the map; (d) the total number of unsigned probable customers; (e) the number of these unsigned probable customers who could be served from the proposed lines shown on the map; (f) the rate of state and county taxes which would have to be paid on the proposed lines; and (g) all possible sources of supply of wholesale energy including joint municipal plants and private power companies.

The large consolidated REA map will be plotted to show the following information: (a) a county name; (b) county subdivisions (townships, school districts, section, etc.); (c) highways; (d) railroads; (e) streams; (f) farm and other rural residences; schools, churches, filling-stations, industries, store and garages; (g) names of towns and villages; (h) point of connection with source of power; (i) existing power lines; (j) proposed lines; (k) "ground return" telephone lines where they parallel proposed lines; (l) points of compass; (m) scale of miles; (n) location of each signed customer.



### Chief Provisions in the Loan Agreement

For each project the RRA Administrator is given exclusive authority to approve and to execute with the borrowing agency a loan contract in which "RRA agrees to lend not greater than the sum or "sums" approved for the project. The execution of a loan contract is conditioned upon several factors which are incorporated in the loan agreement; (a) The borrower agrees to construct or cause the project to be constructed in accordance with specifications determined or approved by RRA; (b) the RRA Administrator is to determine and authorize the borrowing agency as to the method for the prosecution of work - that is, either on force account or under contract with or without competitive bids; (c) bids for contract work must be advertised and awarded to the lowest bidder; (d) the contractor is to perform directly and without sub-contracting not less than 25 per cent of the construction calculated on the basis of the total contract price; (e) all construction contracts for work to be done and entered into by the borrowing agency with contractors and sub-contractors must conform to specifications approved by RRA; (f) RRA reserves the right to supervise the performance of the construction, and the right to inspect all work and materials; (g) all construction contracts and sub-contracts shall contain such provisions as the RRA Administrator may determine for effectuating the purposes

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(1) -- (Continued from preceding pages)

To the above RRA map should be attached an extra plotted map of each town or village showing the town streets along which the proposed line would run, and the location of each residence or other building occupied by a signed customer or an unsigned prospect. The approximate population of each town and village should also be stated.



of the Emergency Relief Appropriation Act of 1933 and the applicable provisions of the Incentive Orders, Rules and Regulations issued thereunder, and the administrative policies of the E.R.A.; (d) not less than 50 per cent of the total amount made available from Federal funds is to be expended in payment of wages for labor employed on the site of the project; (e) however not to take any steps for re-organization, consolidation or merger into any other corporation, or to sell, lease, transfer, mortgage or pledge the property without written consent of E.R.A.

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TABLE A

Central-Station Customers in 1935  
By Regions and States

Region and State	Total Number	Farms Served	Percent that farm customers are of total customers
<b>UNITED STATES</b>	<b>25,241,203</b>	<b>793,977</b>	<b>3.13</b>
<b>NEW ENGLAND</b>	<b>2,369,342</b>	<b>61,547</b>	<b>2.71</b>
Maine	196,111	14,346	7.32
New Hampshire	128,672	11,367	8.83
Vermont	60,787	8,084	13.01
Massachusetts	1,206,023	14,440	1.20
Rhode Island	190,018	1,980	1.04
Connecticut	467,731	11,350	2.43
<b>MIDDLE ATLANTIC</b>	<b>7,249,525</b>	<b>128,070</b>	<b>1.77</b>
New York	3,885,016	64,900	1.67
New Jersey	1,205,922	15,800	1.31
Pennsylvania	2,158,587	47,370	2.19
<b>EAST NORTH CENTRAL</b>	<b>5,946,823</b>	<b>196,624</b>	<b>3.31</b>
Ohio	1,580,252	53,100	3.36
Indiana	701,089	25,178	3.59
Illinois	1,869,389	30,877	1.65
Michigan	1,131,446	46,430	4.11
Wisconsin	664,547	40,979	6.17
<b>WEST NORTH CENTRAL</b>	<b>2,413,404</b>	<b>99,036</b>	<b>4.10</b>
Minnesota	499,511	13,947	2.79
Iowa	469,236	33,670	7.16
Missouri	692,702	22,340	3.23
North Dakota	72,179	2,122	2.94
South Dakota	86,328	2,940	3.40
Nebraska	241,480	9,854	4.08
Kansas	351,968	14,262	4.06
<b>SOUTH ATLANTIC</b>	<b>1,960,532</b>	<b>58,558</b>	<b>2.98</b>
Delaware	51,139	2,270	4.43
Maryland	353,064	7,095	2.01
District of Columbia	145,307	62	0.04
Virginia	387,013	15,995	4.13
West Virginia	214,894	4,335	2.02
North Carolina	276,344	10,245	3.68
South Carolina	117,777	3,906	3.32
Georgia	241,017	8,415	3.49
Florida	271,927	6,523	2.39
<b>EAST SOUTH CENTRAL</b>	<b>356,160</b>	<b>33,352</b>	<b>9.36</b>
Kentucky	289,862	8,995	3.10
Tennessee	267,562	11,871	4.44
Alabama	196,929	9,968	5.06
Mississippi	101,807	2,518	2.47

# THE UNIVERSITY OF CHICAGO LIBRARY

Date Recd.	From	Amount	Balance	Total	Remarks
1892-93	Jan 1	100.00	100.00	100.00	Initial deposit
1893-94	Feb 1	50.00	50.00	150.00	Second deposit
1894-95	Mar 1	75.00	75.00	225.00	Third deposit
1895-96	Apr 1	125.00	125.00	350.00	Fourth deposit
1896-97	May 1	150.00	150.00	500.00	Fifth deposit
1897-98	Jun 1	200.00	200.00	700.00	Sixth deposit
1898-99	Jul 1	250.00	250.00	950.00	Seventh deposit
1899-00	Aug 1	300.00	300.00	1250.00	Eighth deposit
1900-01	Sep 1	350.00	350.00	1600.00	Ninth deposit
1901-02	Oct 1	400.00	400.00	2000.00	Tenth deposit
1902-03	Nov 1	450.00	450.00	2450.00	Eleventh deposit
1903-04	Dec 1	500.00	500.00	2950.00	Twelfth deposit
1904-05	Jan 1	550.00	550.00	3500.00	Thirteenth deposit
1905-06	Feb 1	600.00	600.00	4100.00	Fourteenth deposit
1906-07	Mar 1	650.00	650.00	4750.00	Fifteenth deposit
1907-08	Apr 1	700.00	700.00	5450.00	Sixteenth deposit
1908-09	May 1	750.00	750.00	6200.00	Seventeenth deposit
1909-10	Jun 1	800.00	800.00	7000.00	Eighteenth deposit
1910-11	Jul 1	850.00	850.00	7850.00	Nineteenth deposit
1911-12	Aug 1	900.00	900.00	8750.00	Twentieth deposit
1912-13	Sep 1	950.00	950.00	9700.00	Twenty-first deposit
1913-14	Oct 1	1000.00	1000.00	10700.00	Twenty-second deposit
1914-15	Nov 1	1050.00	1050.00	11750.00	Twenty-third deposit
1915-16	Dec 1	1100.00	1100.00	12850.00	Twenty-fourth deposit
1916-17	Jan 1	1150.00	1150.00	14000.00	Twenty-fifth deposit
1917-18	Feb 1	1200.00	1200.00	15200.00	Twenty-sixth deposit
1918-19	Mar 1	1250.00	1250.00	16450.00	Twenty-seventh deposit
1919-20	Apr 1	1300.00	1300.00	17750.00	Twenty-eighth deposit
1920-21	May 1	1350.00	1350.00	19100.00	Twenty-ninth deposit
1921-22	Jun 1	1400.00	1400.00	20500.00	Thirtieth deposit
1922-23	Jul 1	1450.00	1450.00	21950.00	Thirty-first deposit
1923-24	Aug 1	1500.00	1500.00	23450.00	Thirty-second deposit
1924-25	Sep 1	1550.00	1550.00	25000.00	Thirty-third deposit
1925-26	Oct 1	1600.00	1600.00	26600.00	Thirty-fourth deposit
1926-27	Nov 1	1650.00	1650.00	28250.00	Thirty-fifth deposit
1927-28	Dec 1	1700.00	1700.00	29950.00	Thirty-sixth deposit
1928-29	Jan 1	1750.00	1750.00	31700.00	Thirty-seventh deposit
1929-30	Feb 1	1800.00	1800.00	33500.00	Thirty-eighth deposit
1930-31	Mar 1	1850.00	1850.00	35350.00	Thirty-ninth deposit
1931-32	Apr 1	1900.00	1900.00	37250.00	Fortieth deposit
1932-33	May 1	1950.00	1950.00	39200.00	Forty-first deposit
1933-34	Jun 1	2000.00	2000.00	41200.00	Forty-second deposit
1934-35	Jul 1	2050.00	2050.00	43250.00	Forty-third deposit
1935-36	Aug 1	2100.00	2100.00	45350.00	Forty-fourth deposit
1936-37	Sep 1	2150.00	2150.00	47500.00	Forty-fifth deposit
1937-38	Oct 1	2200.00	2200.00	49700.00	Forty-sixth deposit
1938-39	Nov 1	2250.00	2250.00	51950.00	Forty-seventh deposit
1939-40	Dec 1	2300.00	2300.00	54250.00	Forty-eighth deposit
1940-41	Jan 1	2350.00	2350.00	56600.00	Forty-ninth deposit
1941-42	Feb 1	2400.00	2400.00	59000.00	Fiftieth deposit
1942-43	Mar 1	2450.00	2450.00	61450.00	Fifty-first deposit
1943-44	Apr 1	2500.00	2500.00	63950.00	Fifty-second deposit
1944-45	May 1	2550.00	2550.00	66500.00	Fifty-third deposit
1945-46	Jun 1	2600.00	2600.00	69100.00	Fifty-fourth deposit
1946-47	Jul 1	2650.00	2650.00	71750.00	Fifty-fifth deposit
1947-48	Aug 1	2700.00	2700.00	74450.00	Fifty-sixth deposit
1948-49	Sep 1	2750.00	2750.00	77200.00	Fifty-seventh deposit
1949-50	Oct 1	2800.00	2800.00	80000.00	Fifty-eighth deposit
1950-51	Nov 1	2850.00	2850.00	82850.00	Fifty-ninth deposit
1951-52	Dec 1	2900.00	2900.00	85750.00	Sixtieth deposit
1952-53	Jan 1	2950.00	2950.00	88700.00	Sixty-first deposit
1953-54	Feb 1	3000.00	3000.00	91700.00	Sixty-second deposit
1954-55	Mar 1	3050.00	3050.00	94750.00	Sixty-third deposit
1955-56	Apr 1	3100.00	3100.00	97850.00	Sixty-fourth deposit
1956-57	May 1	3150.00	3150.00	101000.00	Sixty-fifth deposit
1957-58	Jun 1	3200.00	3200.00	104200.00	Sixty-sixth deposit
1958-59	Jul 1	3250.00	3250.00	107450.00	Sixty-seventh deposit
1959-60	Aug 1	3300.00	3300.00	110750.00	Sixty-eighth deposit
1960-61	Sep 1	3350.00	3350.00	114100.00	Sixty-ninth deposit
1961-62	Oct 1	3400.00	3400.00	117500.00	Seventieth deposit
1962-63	Nov 1	3450.00	3450.00	120950.00	Seventy-first deposit
1963-64	Dec 1	3500.00	3500.00	124450.00	Seventy-second deposit
1964-65	Jan 1	3550.00	3550.00	128000.00	Seventy-third deposit
1965-66	Feb 1	3600.00	3600.00	131600.00	Seventy-fourth deposit
1966-67	Mar 1	3650.00	3650.00	135250.00	Seventy-fifth deposit
1967-68	Apr 1	3700.00	3700.00	138950.00	Seventy-sixth deposit
1968-69	May 1	3750.00	3750.00	142700.00	Seventy-seventh deposit
1969-70	Jun 1	3800.00	3800.00	146500.00	Seventy-eighth deposit
1970-71	Jul 1	3850.00	3850.00	150350.00	Seventy-ninth deposit
1971-72	Aug 1	3900.00	3900.00	154250.00	Eightieth deposit
1972-73	Sep 1	3950.00	3950.00	158200.00	Eighty-first deposit
1973-74	Oct 1	4000.00	4000.00	162200.00	Eighty-second deposit
1974-75	Nov 1	4050.00	4050.00	166250.00	Eighty-third deposit
1975-76	Dec 1	4100.00	4100.00	170350.00	Eighty-fourth deposit
1976-77	Jan 1	4150.00	4150.00	174500.00	Eighty-fifth deposit
1977-78	Feb 1	4200.00	4200.00	178700.00	Eighty-sixth deposit
1978-79	Mar 1	4250.00	4250.00	182950.00	Eighty-seventh deposit
1979-80	Apr 1	4300.00	4300.00	187250.00	Eighty-eighth deposit
1980-81	May 1	4350.00	4350.00	191600.00	Eighty-ninth deposit
1981-82	Jun 1	4400.00	4400.00	196000.00	Ninety deposit
1982-83	Jul 1	4450.00	4450.00	200450.00	Ninety-first deposit
1983-84	Aug 1	4500.00	4500.00	204950.00	Ninety-second deposit
1984-85	Sep 1	4550.00	4550.00	209500.00	Ninety-third deposit
1985-86	Oct 1	4600.00	4600.00	214100.00	Ninety-fourth deposit
1986-87	Nov 1	4650.00	4650.00	218750.00	Ninety-fifth deposit
1987-88	Dec 1	4700.00	4700.00	223450.00	Ninety-sixth deposit
1988-89	Jan 1	4750.00	4750.00	228200.00	Ninety-seventh deposit
1989-90	Feb 1	4800.00	4800.00	233000.00	Ninety-eighth deposit
1990-91	Mar 1	4850.00	4850.00	237850.00	Ninety-ninth deposit
1991-92	Apr 1	4900.00	4900.00	242750.00	Hundredth deposit

TABLE A  
(Continued)

Region and State	Total Number	Farms Served	Percent that farm customers are of total customers
<b>WEST NORTH CENTRAL</b>	1,356,399	24,694	1.82
Arkansas	122,703	3,593	2.93
Louisiana	230,913	3,303	1.43
Oklahoma	322,805	5,848	2.07
Texas	730,078	12,050	1.65
<b>WHEAT BELT</b>	613,245	50,894	7.94
Montana	95,795	2,291	2.08
Idaho	85,490	14,890	17.30
Wyoming	52,852	574	1.75
Colorado	208,091	7,319	3.52
New Mexico	35,212	1,374	3.85
Arizona	74,594	6,133	8.24
Utah	113,415	16,575	14.62
Nevada	12,510	947	7.59
<b>PACIFIC</b>	2,625,673	141,403	5.39
Washington	435,306	42,287	9.68
Oregon	246,458	18,388	7.45
California	1,940,909	80,728	4.16

Source: "Electrical World" - January 4, 1936 - Page 64



TABLE B

## GROWTH IN FARM ELECTRIFICATION

(Figures on electrified farms do not include those  
with individual lighting plants)

Year	Total number of farms	Electrified farms (Dec. 31)	Per Cent of Total
1900	5,737,372		
1910	6,361,502		
1920	6,448,343		
1921	.....		
1922	.....		
1923	.....	177,561	2.8*
1924	.....	204,780	3.2*
1925	6,371,840	246,190	3.9
1926	.....	309,125	4.9*
1927	.....	382,821	6.3*
1928	.....	506,342	8.0*
1929	.....	576,188	9.2*
1930	6,288,648	648,919	10.4
1931	.....	698,795	11.1*
1932	.....	705,075	11.3*
1933	.....	713,858	11.4*
1934	.....	743,854	11.8*
1935	6,812,350	793,977	11.7

\* - Percentage estimates since the Bureau of the Census reports total number of U.S. farms only every five years.

Source: Electrical World - January 4, 1935 - Page 62



TABLE C

NUMBER OF FARM SERVICE CUSTOMERS  
BY REGIONS

1930-35

(As Of December 31)

Region	1935	1934	1933	1932	1931	1930
United States	793,977	743,954	713,358	705,075	698,786	649,919
New England	61,547	58,006	55,725	52,923	52,237	48,996
Middle Atlantic	128,070	118,169	109,001	106,759	104,911	96,342
East North Central	196,624	181,261	172,467	170,421	166,893	151,113
West North Central	99,035	91,398	89,460	89,652	89,717	82,283
South Atlantic	58,558	53,307	50,588	49,080	47,958	42,539
East South Central	33,352	32,062	30,311	31,947	31,513	29,949
West South Central	24,694	22,883	22,371	22,653	22,170	21,438
Mountain	50,694	47,876	46,516	45,026	44,308	42,536
Pacific	141,403	138,992	137,149	136,614	139,073	134,723

Source: "Electrical World" - January 4, 1936 - Page 62



RURAL ELECTRIFICATION  
 Number of farms and farms served by electric central stations  
 in the United States,  
 by states

	Number of farms Jan. 1, 1935 1/	Rank	Number of farms served Dec. 31, 1934 2/	Rank	Percent of farms served	Rank
Alabama	6,812,360	---	743,314	---	11.0	---
Alaska	273,485	7	11,003	23	4.0	33
Arizona	13,834	43	5,877	35	20.4	13
Arkansas	233,813	8	2,943	38	1.2	47
California	100,380	24	31,024	1	33.7	1
Colorado	63,344	32	7,143	30	11.2	25
Connecticut	32,137	39	10,134	24	31.2	10
Delaware	10,381	45	1,711	45	17.2	20
Florida	72,567	30	5,900	33	7.8	36
Georgia	250,544	10	6,705	31	2.6	41
Idaho	43,113	34	13,433	19	30.8	11
Illinois	321,312	11	25,379	9	13.2	23
Indiana	310,835	15	23,474	10	31.7	9
Iowa	331,235	12	33,037	8	20.4	22
Kansas	174,089	21	13,234	20	7.6	39
Kentucky	276,293	5	5,430	36	2.0	43
Louisiana	170,316	33	2,225	40	1.7	45
Maine	41,937	35	13,939	17	30.4	8
Maryland	44,412	35	5,715	32	12.1	21
Massachusetts	33,094	33	14,434	18	41.3	7
Michigan	196,517	18	42,132	5	21.4	17
Minnesota	303,202	14	12,743	12	3.9	31
Mississippi	311,533	3	2,323	41	0.7	52
Missouri	273,434	4	17,333	11	6.4	31
Montana	30,564	33	2,763	42	5.8	32
Nebraska	133,314	25	5,144	36	7.1	37
Nevada	3,695	43	943	47	25.8	15
New Hampshire	17,693	44	9,493	37	23.7	2
New Jersey	39,375	41	10,153	14	21.6	4
New Mexico	41,369	37	1,330	46	3.3	37
New York	177,025	20	37,335	3	32.7	5
North Carolina	335,937	3	9,872	27	5.2	35
North Dakota	34,006	27	1,233	44	3.3	43
Ohio	256,145	6	43,043	3	16.3	19
Oklahoma	313,323	13	5,643	34	2.3	42
Oregon	34,235	31	17,639	13	27.2	14
Pennsylvania	191,234	19	35,132	4	21.3	16
Rhode Island	4,337	47	1,973	43	47.6	3
South Carolina	165,304	23	3,735	39	2.2	44
South Dakota	33,303	29	2,733	39	2.5	38
Tennessee	273,733	6	9,727	24	3.5	34
Texas	331,017	1	11,434	21	3.3	42
Utah	33,333	40	16,130	13	32.1	3
Vermont	27,031	42	7,945	19	29.4	12
Virginia	197,332	17	14,934	15	7.3	27
Washington	34,331	24	40,330	6	47.3	1
West Virginia	104,747	26	3,647	37	3.3	35
Wisconsin	193,377	16	35,334	7	14.1	18
Wyoming	12,437	45	327	48	3.2	40

Sources: 1/ 1935 Census of Agriculture; 2/ U.S.I. Statistical Bulletin No. 2 - P. 38

No.	Date	Description	Amount	Balance	Total
1	1890-91	...	...	...	...
2	1891-92	...	...	...	...
3	1892-93	...	...	...	...
4	1893-94	...	...	...	...
5	1894-95	...	...	...	...
6	1895-96	...	...	...	...
7	1896-97	...	...	...	...
8	1897-98	...	...	...	...
9	1898-99	...	...	...	...
10	1899-00	...	...	...	...
11	1900-01	...	...	...	...
12	1901-02	...	...	...	...
13	1902-03	...	...	...	...
14	1903-04	...	...	...	...
15	1904-05	...	...	...	...
16	1905-06	...	...	...	...
17	1906-07	...	...	...	...
18	1907-08	...	...	...	...
19	1908-09	...	...	...	...
20	1909-10	...	...	...	...
21	1910-11	...	...	...	...
22	1911-12	...	...	...	...
23	1912-13	...	...	...	...
24	1913-14	...	...	...	...
25	1914-15	...	...	...	...
26	1915-16	...	...	...	...
27	1916-17	...	...	...	...
28	1917-18	...	...	...	...
29	1918-19	...	...	...	...
30	1919-20	...	...	...	...
31	1920-21	...	...	...	...
32	1921-22	...	...	...	...
33	1922-23	...	...	...	...
34	1923-24	...	...	...	...
35	1924-25	...	...	...	...
36	1925-26	...	...	...	...
37	1926-27	...	...	...	...
38	1927-28	...	...	...	...
39	1928-29	...	...	...	...
40	1929-30	...	...	...	...
41	1930-31	...	...	...	...
42	1931-32	...	...	...	...
43	1932-33	...	...	...	...
44	1933-34	...	...	...	...
45	1934-35	...	...	...	...
46	1935-36	...	...	...	...
47	1936-37	...	...	...	...
48	1937-38	...	...	...	...
49	1938-39	...	...	...	...
50	1939-40	...	...	...	...
51	1940-41	...	...	...	...
52	1941-42	...	...	...	...
53	1942-43	...	...	...	...
54	1943-44	...	...	...	...
55	1944-45	...	...	...	...
56	1945-46	...	...	...	...
57	1946-47	...	...	...	...
58	1947-48	...	...	...	...
59	1948-49	...	...	...	...
60	1949-50	...	...	...	...
61	1950-51	...	...	...	...
62	1951-52	...	...	...	...
63	1952-53	...	...	...	...
64	1953-54	...	...	...	...
65	1954-55	...	...	...	...
66	1955-56	...	...	...	...
67	1956-57	...	...	...	...
68	1957-58	...	...	...	...
69	1958-59	...	...	...	...
70	1959-60	...	...	...	...
71	1960-61	...	...	...	...
72	1961-62	...	...	...	...
73	1962-63	...	...	...	...
74	1963-64	...	...	...	...
75	1964-65	...	...	...	...
76	1965-66	...	...	...	...
77	1966-67	...	...	...	...
78	1967-68	...	...	...	...
79	1968-69	...	...	...	...
80	1969-70	...	...	...	...
81	1970-71	...	...	...	...
82	1971-72	...	...	...	...
83	1972-73	...	...	...	...
84	1973-74	...	...	...	...
85	1974-75	...	...	...	...
86	1975-76	...	...	...	...
87	1976-77	...	...	...	...
88	1977-78	...	...	...	...
89	1978-79	...	...	...	...
90	1979-80	...	...	...	...
91	1980-81	...	...	...	...
92	1981-82	...	...	...	...
93	1982-83	...	...	...	...
94	1983-84	...	...	...	...
95	1984-85	...	...	...	...
96	1985-86	...	...	...	...
97	1986-87	...	...	...	...
98	1987-88	...	...	...	...
99	1988-89	...	...	...	...
100	1989-90	...	...	...	...

REPORT OF PUBLIC UTILITIES ADMINISTRATION, 1936

BY STATE

Projects approved and projects with loan contracts executed  
as of July 31, 1936

(Compiled by the Works Progress Administration)

State	No. of projects	Total projects approved A/			Projects with loan contracts executed A/			
		Allo- options	miles of line pro- vided	cus- tomers served	no. of pro- jects	Allo- options	miles of line pro- vided	Customers served
TOTAL	90	114,960,728.1	13,583.0	52,622	67	410,441,728	9,320.8	36,076
Alabama	1	55,000	58.4	267	1	65,000	58.4	267
Arkansas	2	43,900	48.0	333	-	-	-	-
Colorado	1	105,000	104.0	427	-	-	-	-
Florida	2	213,000	244.1	696	1	164,500	184.6	455
Georgia	7	773,300	725.9	4,143	7	525,600	483.0	2,499
Idaho	3	89,750	75.0	320	2	89,750	75.0	320
Illinois	3	183,500	207.0	649	2	141,500	167.0	484
Indiana	4	781,826	797.0	3,050	3	764,426	782.0	2,979
Iowa	10	825,416	904.8	2,681	4	500,616	482.6	1,523
Kansas	1	65,000	60.0	341	-	-	-	-
Kentucky	2	661,700	191.7	1,434	1	71,700	88.7	291
Maryland	1	90,000	68.0	492	-	-	-	-
Minnesota	7	1,461,000	1,379.2	4,717	6	1,291,000	1,156.2	4,273
Mississippi	1	81,000	55.3	361	1	81,000	85.3	361
Montana	1	130,000	110.0	447	-	-	-	-
Nebraska	7	2,133,300	1,831.1	8,038	5	1,576,000	1,397.7	3,799
North Carolina	4	645,250	537.4	3,386	4	415,350	387.1	2,217
North Dakota	1	96,000	51.0	265	-	-	-	-
Ohio	7	2,424,200	1,881.0	7,631	5	2,171,000	1,711.0	6,850
Oklahoma	2	130,000	166.0	615	1	70,000	81.0	315
Pennsylvania	1	400,000	375.0	1,343	1	101,000	67.0	250
South Carolina	3	848,328	643.0	2,548	3	643,328	621.0	2,548
South Dakota	1	77,000	67.0	330	-	-	-	-
Tennessee	3	360,258	282.1	1,547	3	250,258	239.8	1,500
Texas	2	483,000	350.1	1,365	2	485,000	330.0	1,422
Virginia	4	545,900	545.4	2,743	1	256,800	401.0	1,511
Washington	2	70,400	81.0	401	-	-	-	-
Wisconsin	3	1,766,500	1,648.5	5,246	3	844,000	127.0	2,010

A/ In addition to the projects listed the sum of \$179,000 has been allocated for the financing of wiring of customers' premises. Of this sum one loan contract in the amount of \$20,000 has been executed in Ohio. B/ Excludes \$1,250,487 rescinded on Presidential Letter No. 1795, dated July 27, 1936, but not acted upon by Comptroller General as of July 31, 1936. Rescinded projects to be prosecuted with their funds.

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Main body of vertical text, organized into columns, likely containing a list or index.

Vertical text on the left margin, likely a page number or title.

STATUS OF RURAL ELECTRIFICATION ADMINISTRATION PROJECTS  
BY STATE

Projects under construction and projects completed  
as of July 31, 1936

(Compiled by the Works Progress Administration)

State	No. of projects	Projects Under Construction			Projects Completed			
		Allo- cations	Miles of line pro- vided	Gas- tometers served	No. of pro- jects	Allo- cations	Miles of line pro- vided	Gas- tometers served
TOTAL	14	\$13,621,076	3,370.2	14,622	4	\$173,616	177.2	825
Florida	1	164,000	184.5	456	-	-	-	-
Georgia	1	109,200	99.1	863	-	-	-	-
Idaho	-	-	-	-	1	54,000	40.0	248
Illinois	1	81,550	98.0	300	-	-	-	-
Indiana	1	567,926	597.0	2,200	-	-	-	-
Iowa	-	-	-	-	1	5,616	2.6	50
Kentucky	1	71,700	38.7	291	-	-	-	-
Mississippi	-	-	-	-	1	81,000	55.8	361
North Carolina	1	143,250	128.5	1,000	-	-	-	-
Ohio	4	1,424,000	1,118.0	4,480	-	-	-	-
Oklahoma	1	70,000	81.0	315	-	-	-	-
South Carolina	1	130,000	510.7	2,123	-	-	-	-
Tennessee	1	92,300	78.6	1,279	-	-	-	-
Texas	-	-	-	-	1	33,000	20.0	166
Virginia	1	366,800	406.0	1,511	-	-	-	-



TABLE 8

VALUES OF FARM BUILDINGS AND DWELLINGS AND GROSS CASH INCOME FROM  
FARM PRODUCTIONS\* OF STATES IN WHICH RLA PROJECTS ARE LOCATED

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	SPECIFIED FARM PROPERTY VALUES (1930)			CASH INCOME (1935)			REA ACTION		
STATE	AVERAGE VALUE OF FARM BUILDINGS (DOLLARS)	AVERAGE VALUE OF FARM DWELLINGS (DOLLARS)	AVERAGE VALUE OF FARM DWELLINGS (DOLLARS)	AVERAGE INCOME PER FARM (DOLLARS)	AVERAGE INCOME PER FARM (DOLLARS)	NUMBER OF PROJECTS	ALLOCATIONS (AS OF JULY 31) (DOLLARS)	REA ACTION	
	A/	B/	B/	RANK	RANK	RANK	RANK	RANK	RANK
UNITED STATES	2,059	1,126	1,020	89	14,960,728	25	65,000	25	25
ALABAMA	576	408	381	26	28	1	65,000	25	25
ARKANSAS	677	381	446	27	25	2	43,900	26	26
COLORADO	1,975	1,074	1,673	16	5	1	105,000	18	18
FLORIDA	1,195	807	1,224	18	13	2	213,000	15	15
GEORGIA	714	483	509	25	23	7	773,200	7	7
IDAHO	1,848	1,117	1,857	15	3	2	89,750	21	21
ILLINOIS	3,641	1,803	1,571	5	6	3	183,500	16	16
INDIANA	2,516	1,388	1,220	11	12	4	781,526	6	6
IOWA	4,827	2,212	2,103	1	1	10	825,416	5	5
KANSAS	2,329	1,271	1,520	13	8	1	65,000	25	25
KENTUCKY	1,122	664	479	20	24	2	261,700	13	13
MARYLAND	3,651	2,051	1,313	2	10	1	90,000	20	20
MINNESOTA	4,623	1,704	1,375	7	9	7	1,461,000	4	4
MISSISSIPPI	504	377	424	28	26	1	61,000	22	22
MONTANA	1,783	910	1,936	17	2	1	130,000	17	17
NEBRASKA	3,449	1,719	1,696	6	4	7	2,136,900	2	2
NORTH CAROLINA	967	653	681	21	20	4	645,250	10	10
NORTH DAKOTA	2,964	1,408	1,219	10	14	1	96,000	19	19
OHIO	3,013	1,619	1,028	8	17	7	2,424,200	1	1
OKLAHOMA	1,037	620	801	22	19	2	130,000	17	17
PENNSYLVANIA	3,905	2,038	1,107	3	16	1	400,000	12	12
SOUTH CAROLINA	754	519	556	24	21	3	648,328	8	8
SOUTH DAKOTA	2,596	1,432	1,138	9	15	1	77,000	23	23



TABLE 4 (CONTINUED)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TENNESSEE	926	23	602	23	385	27	2	260,000	14
TEXAS	1,079	220	700	19	883	18	2	438,000	11
VIRGINIA	1,987	15	1,226	14	530	22	4	646,800	9
WASHINGTON	2,231	12	1,318	12	1,562	7	2	70,400	24
WISCONSIN	4,104	3	1,886	4	1,257	11	8	1,766,600	3

• RECEIPTS FROM SALE OF PRINCIPAL FARM PRODUCTS PLUS RENTAL AND BENEFIT PAYMENTS FROM A.A.A.

A INCLUDES FARM DWELLINGS

B RANK DESIGNATED IS THE RANK AMONG THE 26 STATES IN WHICH REA PROJECTS ARE LOCATED.

SOURCES: U.S. CENSUS OF AGRICULTURE 1930;  
U.S. CENSUS OF AGRICULTURE 1935



Summary of the State's 1930 Average Values of Farm Buildings, Farm Dwellings, and Gross Income falling below the National Average, with those of its Counties in which WPA Projects are located.

(Only for those States in which projects are located in two or more counties of that State)

State and County	Average value of farm buildings per farm (dollars)	Average value of farm dwellings per farm (dollars)	* Average gross income per farm (dollars)
UNITED STATES	2,059	1,126	1,836
Arkansas	576	408	988
1. Craighead	741	465	1,222
2. Izard	516	359	764
Georgia	714	483	1,011
1. Crisp	790	515	1,262
2. Lowndes	844	552	1,362
3. Wilkes	578	419	666
4. Catoosa	883	612	946
5. Toombs	550	373	1,230
6. Troup	930	666	995
7. Newton	726	527	893
North Carolina	967	653	1,040
1. Wilson	946	594	1,394
2. New Hanover	2,339	1,624	3,544
3. Johnston	974	682	1,304
4. Edgecomb	1,018	623	1,673
Oklahoma	1,037	620	1,615
1. Oklahoma	1,295	1,051	1,706
2. Comanche	1,159	694	1,853
South Carolina	754	519	935
1. Richland	955	601	779
2. Calhoun	550	385	656
3. Greenwood	807	555	719
Tennessee	926	602	945
1. Meigs	895	484	1,203
2. Rhea	972	635	1,176
Florida	1,195	807	1,696
1. Pinellas	2,453	1,696	4,059
2. Orange	2,527	1,783	2,323
Virginia	1,887	1,226	1,252
1. Caroline	1,486	1,011	833
2. Rockingham	3,829	2,076	1,809
3. Prince William	3,510	2,090	1,918
4. Lancaster	1,258	944	691

\* Value of farm products sold, traded or used by operator's family plus receipts from boarders, etc.

Source: Computed by the Works Progress Administration from the 1930 Census of Agriculture.



TABLE I

## RURAL ELECTRIFICATION PROJECTS BY SPONSORS

## ALL APPROVED PROJECTS

CHARACTER OF THE APPLICANT OR BORROWER	TOTAL NUMBER OF PROJECTS	PER CENT OF TOTAL	VALUE OF PROJ- JECTS (DOLLARS)	PER CENT OF TOTAL VALUE (DOLLARS)	AVERAGE VALUE PER PROJECT (DOLLARS)	MILES OF LINE PRV- VIDED	PER CENT OF TOTAL MILEAGE	AVERAGE MILEAGE PER PROJECT	NUMBER OF CUSTOMERS ON PROJ- JECTS	PER CENT OF TOTAL CUSTOMERS	AVERAGE NUMBER OF CUSTOMERS PER PROJECT
PRIVATELY OWNED											
UTILITIES	14	16	1,110,500	8	84,033	1,108	10	85	5,000	9	357
PUBLIC OR SEMI-PUBLIC SOCIETIES	17	20	3,047,000	21	180,412	2,050	20	166	8,828	17	519
FARM CO- OPERATIVE ASSOCIATIONS AND OTHER NON- PROFIT MAKING BODIES	50	64	10,707,470	71	194,512	9,341	70	186	36,501	74	495
TOTAL *	81	100	14,864,970	100	184,008	13,508	100	173	52,829	100	592

SOURCE: COMPUTED BY THE WORKS PROGRESS ADMINISTRATION

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36
37	38	39	40	41	42
43	44	45	46	47	48
49	50	51	52	53	54
55	56	57	58	59	60
61	62	63	64	65	66
67	68	69	70	71	72
73	74	75	76	77	78
79	80	81	82	83	84
85	86	87	88	89	90
91	92	93	94	95	96
97	98	99	100	101	102
103	104	105	106	107	108
109	110	111	112	113	114
115	116	117	118	119	120
121	122	123	124	125	126
127	128	129	130	131	132
133	134	135	136	137	138
139	140	141	142	143	144
145	146	147	148	149	150
151	152	153	154	155	156
157	158	159	160	161	162
163	164	165	166	167	168
169	170	171	172	173	174
175	176	177	178	179	180
181	182	183	184	185	186
187	188	189	190	191	192
193	194	195	196	197	198
199	200	201	202	203	204
205	206	207	208	209	210
211	212	213	214	215	216
217	218	219	220	221	222
223	224	225	226	227	228
229	230	231	232	233	234
235	236	237	238	239	240
241	242	243	244	245	246
247	248	249	250	251	252
253	254	255	256	257	258
259	260	261	262	263	264
265	266	267	268	269	270
271	272	273	274	275	276
277	278	279	280	281	282
283	284	285	286	287	288
289	290	291	292	293	294
295	296	297	298	299	300
301	302	303	304	305	306
307	308	309	310	311	312
313	314	315	316	317	318
319	320	321	322	323	324
325	326	327	328	329	330
331	332	333	334	335	336
337	338	339	340	341	342
343	344	345	346	347	348
349	350	351	352	353	354
355	356	357	358	359	360
361	362	363	364	365	366
367	368	369	370	371	372
373	374	375	376	377	378
379	380	381	382	383	384
385	386	387	388	389	390
391	392	393	394	395	396
397	398	399	400	401	402
403	404	405	406	407	408
409	410	411	412	413	414
415	416	417	418	419	420
421	422	423	424	425	426
427	428	429	430	431	432
433	434	435	436	437	438
439	440	441	442	443	444
445	446	447	448	449	450
451	452	453	454	455	456
457	458	459	460	461	462
463	464	465	466	467	468
469	470	471	472	473	474
475	476	477	478	479	480
481	482	483	484	485	486
487	488	489	490	491	492
493	494	495	496	497	498
499	500	501	502	503	504
505	506	507	508	509	510
511	512	513	514	515	516
517	518	519	520	521	522
523	524	525	526	527	528
529	530	531	532	533	534
535	536	537	538	539	540
541	542	543	544	545	546
547	548	549	550	551	552
553	554	555	556	557	558
559	560	561	562	563	564
565	566	567	568	569	570
571	572	573	574	575	576
577	578	579	580	581	582
583	584	585	586	587	588
589	590	591	592	593	594
595	596	597	598	599	600
601	602	603	604	605	606
607	608	609	610	611	612
613	614	615	616	617	618
619	620	621	622	623	624
625	626	627	628	629	630
631	632	633	634	635	636
637	638	639	640	641	642
643	644	645	646	647	648
649	650	651	652	653	654
655	656	657	658	659	660
661	662	663	664	665	666
667	668	669	670	671	672
673	674	675	676	677	678
679	680	681	682	683	684
685	686	687	688	689	690
691	692	693	694	695	696
697	698	699	700	701	702
703	704	705	706	707	708
709	710	711	712	713	714
715	716	717	718	719	720
721	722	723	724	725	726
727	728	729	730	731	732
733	734	735	736	737	738
739	740	741	742	743	744
745	746	747	748	749	750
751	752	753	754	755	756
757	758	759	760	761	762
763	764	765	766	767	768
769	770	771	772	773	774
775	776	777	778	779	780
781	782	783	784	785	786
787	788	789	790	791	792
793	794	795	796	797	798
799	800	801	802	803	804
805	806	807	808	809	810
811	812	813	814	815	816
817	818	819	820	821	822
823	824	825	826	827	828
829	830	831	832	833	834
835	836	837	838	839	840
841	842	843	844	845	846
847	848	849	850	851	852
853	854	855	856	857	858
859	860	861	862	863	864
865	866	867	868	869	870
871	872	873	874	875	876
877	878	879	880	881	882
883	884	885	886	887	888
889	890	891	892	893	894
895	896	897	898	899	900
901	902	903	904	905	906
907	908	909	910	911	912
913	914	915	916	917	918
919	920	921	922	923	924
925	926	927	928	929	930
931	932	933	934	935	936
937	938	939	940	941	942
943	944	945	946	947	948
949	950	951	952	953	954
955	956	957	958	959	960
961	962	963	964	965	966
967	968	969	970	971	972
973	974	975	976	977	978
979	980	981	982	983	984
985	986	987	988	989	990
991	992	993	994	995	996
997	998	999	1000	1001	1002
1003	1004	1005	1006	1007	1008
1009	1010	1011	1012	1013	1014
1015	1016	1017	1018	1019	1020
1021	1022	1023	1024	1025	1026
1027	1028	1029	1030	1031	1032
1033	1034	1035	1036	1037	1038
1039	1040	1041	1042	1043	1044
1045	1046	1047	1048	1049	1050
1051	1052	1053	1054	1055	1056
1057	1058	1059	1060	1061	1062
1063	1064	1065	1066	1067	1068
1069	1070	1071	1072	1073	1074
1075	1076	1077	1078	1079	1080
1081	1082	1083	1084	1085	1086
1087	1088	1089	1090	1091	1092
1093	1094	1095	1096	1097	1098
1099	1100	1101	1102	1103	1104
1105	1106	1107	1108	1109	1110
1111	1112	1113	1114	1115	1116
1117	1118	1119	1120	1121	1122
1123	1124	1125	1126	1127	1128
1129	1130	1131	1132	1133	1134
1135	1136	1137	1138	1139	1140
1141	1142	1143	1144	1145	1146
1147	1148	1149	1150	1151	1152
1153	1154	1155	1156	1157	1158
1159	1160	1161	1162	1163	1164
1165	1166	1167	1168	1169	1170
1171	1172	1173	1174	1175	1176
1177	1178	1179	1180	1181	1182
1183	1184	1185	1186	1187	1188
1189	1190	1191	1192	1193	1194
1195	1196	1197	1198	1199	1200
1201	1202	1203	1204	1205	1206
1207	1208	1209	1210	1211	1212
1213	1214	1215	1216	1217	1218
1219	1220	1221	1222	1223	1224
1225	1226	1227	1228	1229	1230
1231	1232	1233	1234	1235	1236
1237	1238	1239	1240	1241	1242
1243	1244	1245	1246	1247	1248
1249	1250	1251	1252	1253	1254
1255	1256	1257	1258	1259	1260
1261	1262	1263	1264	1265	1266
1267	1268	1269	1270	1271	1272
1273	1274	1275	1276	1277	1278
1279	1280	1281	1282	1283	1284
1285	1286	1287	1288	1289	1290
1291	1292	1293	1294	1295	1296
1297	1298	1299	1300	1301	1302
1303	1304	1305	1306	1307	1308
1309	1310	1311	1312	1313	1314
1315	1316	1317	1318	1319	1320
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1345	1346	1347	1348	1349	1350
1351	1352	1353	1354	1355	1356
1357	1358	1359	1360	1361	1362
1363	1364	1365	1366	1367	1368
1369	1370	1371	1372	1373	1374
1375	1376	1377	1378	1379	1380
1381	1382	1383	1384	1385	1386

1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as  $t \rightarrow \infty$ . It is shown that the solutions of the system (1) tend to zero as  $t \rightarrow \infty$  if and only if the matrix  $A$  is Hurwitz. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as  $t \rightarrow \infty$  if the matrix  $A$  is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as  $t \rightarrow \infty$  if and only if the matrix  $A$  is not Hurwitz. The third part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as  $t \rightarrow \infty$  if the matrix  $A$  is not Hurwitz. It is shown that the solutions of the system (1) tend to infinity as  $t \rightarrow \infty$  if and only if the matrix  $A$  is not Hurwitz.

[illegible][illegible]

PROPERTY GROUP	2	14	740,700	0	97,000	712	0	02	1,324	0	002
RETAILERS											
PEOPLE OF THE WORLD											
PUBLIC RELATIONS	9	10	2,302,200	21	251,300	2,000	22	220	6,302	10	700
PEOPLE OF THE WORLD											
PUBLIC RELATIONS	40	70	7,434,076	71	180,000	5,500	70	104	28,140	70	004

[illegible]

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	36	37	38	39	40
	41	42	43	44	45
	46	47	48	49	50
	51	52	53	54	55
	56	57	58	59	60
	61	62	63	64	65
	66	67	68	69	70
	71	72	73	74	75
	76	77	78	79	80
	81	82	83	84	85
	86	87	88	89	90
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	96	97	98	99	100

REPORT MADE BY THE SOCIAL SECURITY ADMINISTRATION  
AS OF JULY 31, 1936

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
NAME OF PROPERTY	O.P. NUMBER	NO. OF WILLS	WILLING- CAPACITY	ESTIMATED PROPERTY	ESTIMATED UNEMPLOYED OF EMPLOY- MENT	ESTIMATED CAPACITY LAST	NO. OF NEW SIBL CHILDREN LIVE ALL DECEASED	CHARACTER OF THE AS- SET PLACED ON RECORD 1-31
1) ALABAMA 9 CLARKSON 14 HAYTON	57-42	50.4	\$ 45,500	\$ 1,113	12.3	\$ 1,082	267	COOPERATIVE LOAN CONTRACT EXECUTED 5/2/36
2) ARKANSAS 14 CALHOUN 20	57-126	16.	5,400	336	5.3	1,040	74	PRIVATE LOAN- NO FURTHER ACTION
3) ARKANSAS 3 IZARD	57-151	32.	36,200	1,203	13.0	2,002	240	COOPERATIVE NO FURTHER ACTION
4) COLORADO 7 NEGA	57-172	104.	157,030	1,010	37.9	2,776	427	COOPERATIVE NO FURTHER ACTION
5) FLORIDA 7 FINELLAS	57-50	154.6	104,530	897	51.3	2,584	455	PRIVATE LOAN- LOAN CONTRACT EXECUTED 1/13/36 DATE WORK STARTED 3/23/36
6) FLORIDA 12 HARRIS	57-132	59.46	48,700	816	22.1	2,175	241	PRIVATE LOAN- NO FURTHER ACTION
7) GEORGIA 2 HISB	57-43	60.	80,500	1,700	25.1	2,304	200	COOPERATIVE LOAN CONTRACT EXECUTED FOR ONLY \$50,000 ON 9/12/36



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
8) GEORGIA 15 LAWRENCE	57-40	89.1	10,200	1,402	33.0	3,700	603	PRIVATE CORPOR- ATION	LOAN CONTRACT EXECUTED 1/24/36 WORK STARTED 4/14/36
9) GEORGIA 9 FELDER	57-41	11.2	12,000	1,071	3.7	2,100	50	COOPERATIVE	LOAN CONTRACT EXECUTED 2/14/36
10) GEORGIA 7 CATHERA	57-42	353.9	375,000	1,000	100.0	2,000	2,074	COOPERATIVE	LOAN CONTRACT EXEC- UTED FOR ONLY \$137,400 ON 6/28/36. THIS PROJECT COMPLETED WITH \$4. 70 CATHERA AND \$4. 70 CATHERA.
11) GEORGIA 42 FELDER	57-43	10.	13,000	1,000	10.0	2,100	200	COOPERATIVE	LOAN CONTRACT EXECUTED 1/1/36
12) GEORGIA 20 FELDER	57-44	76.7	74,000	1,000	25.7	1,400	400	COOPERATIVE	LOAN CONTRACT EXECUTED 1/23/36
13) GEORGIA 11 FELDER	57-45	75.	90,000	1,200	24.7	1,400	500	COOPERATIVE	LOAN CONTRACT EXECUTED 1/23/36
14) GEORGIA 4 FELDER	57-46	40.	94,000	1,300	25.0	2,110	240	COOPERATIVE	LOAN CONTRACT EXECUTED 12/13/35 WORK STARTED 3/21/36 WORK COMPLETED AND LINE COMPLETED 7/11/36

11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
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47	47	47	47	47	47	47
48	48	48	48	48	48	48
49	49	49	49	49	49	49
50	50	50	50	50	50	50
51	51	51	51	51	51	51
52	52	52	52	52	52	52
53	53	53	53	53	53	53
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59	59	59	59	59	59	59
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92	92	92	92	92	92	92
93	93	93	93	93	93	93
94	94	94	94	94	94	94
95	95	95	95	95	95	95
96	96	96	96	96	96	96
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100	100	100	100	100	100	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
15) ILLINOIS 9 HOMER	57-57	30.	27,500	1,001	16.3	7,703	2	COOPERATIVE	LOAN CONTRACT 12/12/35
16) ILLINOIS 4 ATKINS	57-34	90.	21,000	607	30.4	7,102	300	PRIVATE ASSOCIATION	LOAN CONTRACT 7 12/11/35; LOSS PAID NOV 24
17) ILLINOIS 9 W. BLAKE	57-123	40.	42,000	1,000	14.7	2,007	100	PUBLIC AGENCY	NO FURTHER AC
18) ILLINOIS 7 HAY	57-153	65.	20,000	300	13.9	3,170	100	COOPERATIVE	LOAN CONTRACT 7/23/35
19) ILLINOIS 9 HAY	57-3	507.	37,000	300	210.2	1,000	1,200	COOPERATIVE	LOAN CONTRACT 11/4/35; LOSS 1/1/36
20) ILLINOIS 2 SELLS	57-25	45.	17,100	1,140	4.7	1,000	11	PUBLIC AGENCY	NO FURTHER AC
21) ILLINOIS 7 HAY	57-137	50.	14,000	1,000	7.0	3,000	100	COOPERATIVE	LOAN CONTRACT 7/9/35
22) ILLINOIS 14 HAY	57-15	115.	110,000	370	37.2	3,032	377	COOPERATIVE	LOAN CONTRACT 7/21/35
23) ILLINOIS 2 HAY	57-112	100.	127,000	100	54.4	2,000	100	PUBLIC AGENCY	NO FURTHER AC



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
24) IOWA 6 DALLAS	57-25	2.59	5,616	2,160	1.2	4,610	50	PRIVATE CORPORATION	LOAN CONTRACT EXECUTED WEEK ENDING 11/4/35; WORK STARTED 11/16/35; WORK COMPLETED AND LINE ENERGIZED 12/15/35
25) IOWA 7 SCOTT	57-55	260.6	210,000	996	79.3	3,279	400	COOPERATIVE	JOINT LOAN CONTRACT EXECUTED FOR THIS PROJECT AND FOR IOWA 29 MUSCATINE ON 7/28/36
26) IOWA 29 MUSCATINE	57-150	69.2	70,000	1,012	20.7	3,362	200	COOPERATIVE	SEE IOWA 9 SCOTT
27) IOWA 11 WEBSTER	57-120	26.	26,000	1,000	22.5	1,156	76	PUBLIC AGENCY	NO FURTHER ACTION
28) IOWA 18 WRIGHT	57-115	40.	45,000	1,125	13.3	3,363	118	COOPERATIVE	LOAN CONTRACT EXECUTED 6/12/36
29) IOWA 19 ADAMS	57-121	110.	120,000	1,091	36.4	3,297	305	COOPERATIVE	LOAN CONTRACT EXECUTED 6/4/36
30) IOWA 20 BREWER	57-122	79.3	79,300	1,000	26.3	3,015	254	PUBLIC AGENCY	NO FURTHER ACTION
31) IOWA 12 IOWA	57-139	11.9	37,000	3,100	6.3	9,573	246	COOPERATIVE	NO FURTHER ACTION
32) IOWA 5 CARROLL	57-171	56.	55,000	1,000	16.4	3,354	110	PUBLIC AGENCY	NO FURTHER ACTION



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
32) KANSAS 1	21-41	40.	67,000	1,000	10.0	1,000	240	COOPERATIVE	LOSS CAPITAL EXCEEDED 12/12/35 LOSS STARTED DURING WEEK ENDING 5/12/36
34) KENTUCKY 1	21-47	36.7	11,700	1,000	10.0	2,000	201	COOPERATIVE	LOSS CAPITAL EXCEEDED 12/12/35 LOSS STARTED DURING WEEK ENDING 5/12/36
35) KENTUCKY 14	21-428	113.	100,000	1,200	10.0	1,100	1,100	COOPERATIVE	NO FURTHER ACTION
36) KENTUCKY 2	21-414	65.	25,000	1,300	22.1	6,000	202	COOPERATIVE	NO FURTHER ACTION
37) MINNESOTA 15	21-30	170.	100,000	1,000	20.0	1,000	200	COOPERATIVE	LOSS CAPITAL EXCEEDED 2/5/36
38) MINNESOTA 3	21-400	40.	20,000	1,000	12.0	4,000	1,000	COOPERATIVE	LOSS CAPITAL EXCEEDED 5/12/36
39) MINNESOTA 25	21-110	20.	100,000	1,100	210.	1,000	2,000	COOPERATIVE	LOSS CAPITAL EXCEEDED 2/1/36
40) MINNESOTA 4	21-111	20.	60,000	1,000	10.0	1,000	200	COOPERATIVE	LOSS CAPITAL EXCEEDED 5/1/36
41) MINNESOTA 16	21-104	20.	100,000	1,000	37.5	2,000	100	COOPERATIVE	LOSS CAPITAL EXCEEDED 2/1/36
42) MINNESOTA 16	21-37	22.00	10,000	100	10.0	1,000	50	COOPERATIVE	LOSS CAPITAL EXCEEDED 2/1/36

158 FARIBAULT EXECUTED  
 7/9/36  
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ASTOR LENOX TILDEN FOUNDATION  
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
43) MINNESOTA 37 JACKSON	57-176	190.	171,000	900	57.	3,000	442	COOPERATIVE	NO FURTHER ACTION
44) MISSISSIPPI 1 MOORE	57-19	55.3	81,000	1,465	40.8	1,465	361	COOPERATIVE	LOAN CONTRACT EXECUTED 11/6/35; WORK STARTED AND COMPLETED ON FORCE ACCOUNT ON A 3 MILE SECTION DURING WEEK ENDING 1/17/36, THE BALANCE OF THE PROJECT STARTED UNDER CONTRACT DURING WEEK ENDING 4/3/36.
45) MONTANA 9 YELLOWSTONE	57-162	110.	130,000	1,182	40.7	3,194	447	COOPERATIVE	NO FURTHER ACTION
46) NEBRASKA 11 SCOTT BLUFF	57-21	226.5	310,000	1,369	162.6	1,907	839	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 11/4/35
47) NEBRASKA 3 SCOTT BLUFF	57-23	47.2	65,000	1,377	33.1	1,964	143	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 11/4/35
48) NEBRASKA 7 GAGE	57-57	450.	440,000	976	150.7	2,920	1,117	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 12/6/35
49) NEBRASKA 24 LANCASTER	57-22	354.	396,000	1,119	122.0	3,246	900	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 5/8/36
50) NEBRASKA 44 GAGE	57-125	320.	365,000	1,141	107.0	3,411	800	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 5/20/36
51) NEBRASKA 26 PLATTE	57-124	354.3	391,000	1,104	105.0	3,724	815	PUBLIC AGENCY	NO FURTHER ACTION
52) NEBRASKA 52 PLATTE	57-177	179.1	171,900	960	48.1	3,574	422	PRIVATE COR- PORATION	NO FURTHER ACTION

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
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1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of the names and addresses of the members of the committee.

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11. The eleventh part of the document is a list of the names and addresses of the members of the committee.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
53) N. CAROLINA 7 HILSON	27-30	120.	101,000	1,232	47.9	3,498	650	LOW CONTRACT EXECUTED 1/2/36
54) N. CAROLINA 8 HILSON	27-31	120.	101,000	1,187	47.9	2,955	1,350	LOW CONTRACT EXECUTED 3/12/35; WORK STOPPED DURING WEEK ENDING 5/15/35; SUB- PLACED BECAUSE OF FIRE DURING WEEK ENDING 8/27/35, AND RESUMED WORK 7/1/36
55) N. CAROLINA 15 HILSON	30-4-5	255.3	110,000	1,040	100.0	2,553	1,535	LOW CONTRACT FOR ONLY 45 MILES EXECUTED 6/25/36; 1-15 PERCENT A LUMP SUM NORTH CAROLINA 13A JOINTLY A N. CAROLINA 155 JOINTLY
56) N. CAROLINA 16 HILSON	27-4-6	35.	32,777	417	12.0	2,431	103	LOW CONTRACT EXECUTED 7/10/36
57) N. CAROLINA 17 HILSON	27-4-7	51.	35,000	1,082	22.1	4,341	205	NO FURTHER ACTION
58) N. CAROLINA 18 HILSON	27-4-8	112.	254,000	1,310	137.7	1,416	3,620	LOW CONTRACT EXECUTED 11/4/35; WORK STOPPED 1/11/36 1-15 PERCENT LUMP SUM WITH 2010 21 SHELLEY AND 2010 25A CHAPMAN EXPENSE ESTIMATED TOTAL EXPENSES 16 ESTIMATED TO BE 3,620
59) N. CAROLINA 21 HILSON	27-4-9	275.	300,000	1,900	100.4	1,900	---	LOW CONTRACT EXECUTED 11/6/35 WORK STOPPED 1/11/36; SEE 2010 21A













(1) (2) (3) (4) (5) (6) (7) (8) (9) (10)

50) 8410 26A  
CHARTER

LOAN CONTRACT EXECUTED  
2/21/30; WORK STARTED  
WORKING WEEK ENDING  
4/21/30; SEE 8410 1A  
REMARK

51) 8410 26  
FIRE

NO FURTHER ACTION

52) 8410 27  
MILLER

LOAN CONTRACT EXECUTED  
4/21/30

53) 8410 28  
LOAN

LOAN CONTRACT EXECUTED  
4/20/30; THIS PROJECT  
CONTINUED ON 8410 28A  
REMARK

54) 8410 29  
LOAN

LOAN CONTRACT EXECUTED  
DURING WEEK ENDING 1/4/30  
LOAN STARTED WORKING WEEK  
ENDING 4/21/30

55) 8410 30  
REMARK  
REMARK  
REMARK

LOAN CONTRACT EXECUTED  
12/13/29; WORK STARTED  
2/20/30; WORK COMPLETED  
ON THIS SECTION DURING  
WEEK ENDING 4/21/30;  
REMARK. 8410 30A IS AN  
ADDITIONAL ALLOWANCE FOR  
WORK ON A LOAN CONTRACT WAS  
EXECUTED 4/3/30, BUT WORK  
ON THIS ADDITIONAL SECTION  
HAS NOT STARTED.



(17) (27) (37) (47) (57) (67) (77) (87) (97) (107)

66) SOUTHERN 7 CAROLINA	57-143	85.	60,000	700	22.6	2,000	200	PRIVATE AGENCY HONORARY	NO FURTHER ACTION
67) PENNSYLVANIA 4A CAROLINA	57-144	87.	400,000	1,000	137.4	2,011	1,343	COOPERATIVE	LOAN CONTRACT EXECUTED 7/1/36 BILLED WAS EXECUTED 7/1/36
68) S. CAROLINA 9 SOUTHERN	57-24	500.7	100,000	1,000	20.0	1,000	2,100	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 11/1/36 WORK STARTED 4/1/36; IT IS PROPOSED THAT THE LOAN BE MADE IN SOUTH CAROLINA & CALIFORNIA
69) S. CAROLINA 1 CALIFORNIA	57-7	10.3	10,000	1,100	1.2	2,371	---	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 11/1/36; SEE S. CAROLINA & CALIFORNIA
70) S. CAROLINA 13 CALIFORNIA	57-150	112.	100,000	500	21.7	3,103	400	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 7/20/36
71) S. CAROLINA 3 CALIFORNIA	57-100	67.	77,000	1,100	23.0	3,243	300	COOPERATIVE	NO FURTHER ACTION
72) TENNESSEE 1 CALIFORNIA	57-4	201.	210,000	1,000	10.3	2,400	1,279	COOPERATIVE	LOAN CONTRACT EXECUTED 5/1/36; WORK STARTED SEEN ORDER 7/20/36
73) TENNESSEE 2 CALIFORNIA	57-0	51.1	40,000	500	22.5	2,130	300	PUBLIC AGENCY	LOAN CONTRACT EXECUTED 11/1/36; WORK STARTED ON FIRST SECTION ON 11/1/36 AND COMPLETED 1/14/36 LOAN CONTRACT FOR SECOND SECTION FOR WHICH \$10,000 HAS BEEN AL- LOCATED HAS NOT BEEN EXECUTED.



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
74) TEXAS 7	57-116	300.1	30,000	194	17.3	2,000	100	COOPERATIVE	LOAN CONTRACT TERMS 7/4/40 WORK STARTED 7/4/40 CONTRACT FOR 1 FOR 100 ALLOCATED HAS EXECUTED.
75) TEXAS 21	57-117	300.	30,000	197	17.3	2,000	100	COOPERATIVE	LOAN CONTRACT 7/30/36
76) VIRGINIA 22	57-117	400.	40,000	193	14.0	2,000	100	COOPERATIVE	LOAN CONTRACT 7/24/36, FOR WORK STARTED CONTRACT 7/4/40 7/10/36
77) VIRGINIA 11	57-118	125.	125,000	190	41.1	3,000	100	COOPERATIVE	LOAN CONTRACT 7/24/36, FOR WORK STARTED CONTRACT 7/4/40 7/10/36
78) VIRGINIA 20	57-119	22.3	30,000	195	9.2	3,000	100	PRIVATE COOP- ERATION	LOAN CONTRACT 7/24/36, FOR WORK STARTED CONTRACT 7/4/40 7/10/36
79) VIRGINIA 19	57-120	93.1	125,000	193	41.2	3,000	100	PRIVATE COOP- ERATION	LOAN CONTRACT 7/24/36, FOR WORK STARTED CONTRACT 7/4/40 7/10/36
80) VIRGINIA 7	57-121	50.	50,000	194	22.0	3,000	100	PRIVATE COOP- ERATION	LOAN CONTRACT 7/24/36, FOR WORK STARTED CONTRACT 7/4/40 7/10/36



(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
81) WASHINGTON 14 KING	57-145	13.	13,000	1,000	4.7	2,736	61	COOPERATIVE	NO FURTHER ACTION
82) WISCONSIN 31 COLUMBIA	57-131	244.	254,000	1,041	60.3	2,844	101	COOPERATIVE	LOAN CONTRACT EXECUTED 5/25/36
83) WISCONSIN 35 HIGHLAND	57-132	231.	230,000	1,032	66.2	2,834	732	COOPERATIVE	LOAN CONTRACT EXECUTED 5/16/36
84) WISCONSIN 36 ONE	57-133	130.	160,000	1,067	49.9	2,206	457	COOPERATIVE	LOAN CONTRACT EXECUTED 5/24/36
85) WISCONSIN 38 ROCK	57-147	414.	430,000	1,038	137.8	3,118	934	COOPERATIVE	THIS PROJECT IS A COM- BINATION OF WISCONSIN 38A ROCK AND WISCONSIN 38B ROCK. NO FURTHER ACTION.
86) WISCONSIN 12 CAIFFOZA	57-146	60.	90,000	1,000	26.6	3,532	301	COOPERATIVE	NO FURTHER ACTION
87) WISCONSIN 37 TREMPEALEAU	57-170	424.	445,000	1,049	140.6	3,465	1,273	COOPERATIVE	THIS PROJECT IS A COM- BINATION OF WISCONSIN 37A TREMPLEAU AND WISCONSIN 37B TREMPEALEAU. NO FURTHER ACTION.

Station	Elevation	Date	Time	Wind	Temp	Humidity	Pressure	Remarks
1. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
2. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
3. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
4. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
5. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
6. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
7. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
8. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
9. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000
10. 1000 ft	1000	10/10	10:00	1000	1000	1000	1000	1000

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
88) WISCONSIN 10 WASHINGTON	57-183	29.5	31,000	1,051	8.9	3,483	93	COOPERATIVE	NO FURTHER ACTION
89) WISCONSIN 16 DOUGLAS	57-182	96.	100,600	1,048	32.0	3,144	315	COOPERATIVE	NO FURTHER ACTION
TOTAL	89	13,588	\$14,960,728	\$1,101	5,196.9	\$2,878	52,629		

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
NOTES REPORT ON	SVITANZKOD	BE	OSP, E	0.8	120, t	000, t	2.95	OSP-10
NOTES REPORT ON	SVITANZKOD	ETC	M.F. E	0.52	840, t	000, 081	1.02	OSP-10
	000, 52	000, 52	0.001, E	101, t	837, 000, 413	000, t	05	JATO